

# The Healthy Foundations Lifestages Segmentation

*Research Report No. 1:  
Creating the segmentation using a quantitative  
survey of the general population  
of England*



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# Acknowledgements

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# Contents

<b>Preface</b>	<b>9</b>
<b>Healthy Foundations in Action</b>	<b>10</b>
<b>Executive Summary</b>	<b>14</b>
<b>1 Introduction</b>	<b>21</b>
1.1 Context	21
1.2 What can a social marketing approach offer?	22
1.3 The segmentation approach	23
1.4 Creating the hypothesis	24
1.5 Research review	25
1.6 Issue mapping	25
1.7 Synthesis and validation	25
1.8 The segmentation model	25
1.9 The four subgroups	26
1.9.1 Lifestage	27
1.10 Personal agency versus structure	27
1.11 Targeting inequalities and deprivation	27
1.12 Identifying resilience	28
1.13 Quantification and profiling	29
1.14 Healthy Foundations – the research programme 2009–2010	30
1.14.1 Data fusion and the Target Group Index	30
1.14.2 The allocation algorithm – ‘the profiler’	30
1.14.3 Geodemographics	30
1.14.4 Qualitative research	31
1.14.5 Synthetic estimates	31
1.14.6 Longitudinal design	31
1.15 Research governance and user involvement	31

<b>2</b>	<b>Methodology</b>	<b>33</b>
2.1	Overall strategy	33
2.2	Development of the motivational dimension	33
2.2.1	Academic literature review	33
2.2.2	Reducing the number of items	35
2.2.3	Further piloting	37
2.3	Development of the environment dimension	39
2.3.1	Lifestage	39
2.4	Health behaviours	40
2.5	Other questionnaire topics	40
2.6	Further questionnaire testing	41
2.7	Sample design	41
2.8	Fieldwork	42
2.9	Data analysis and weighting	43
<b>3</b>	<b>Motivation Dimension</b>	<b>44</b>
3.1	Hypothesis	44
3.2	Development of the dimension	44
3.3	Validation and testing of the constructs	45
3.3.1	Constructs for segmentation	50
3.4	Segmentation process	52
3.4.1	Weighted vs. unweighted data	52
3.4.2	Discussion of segmentation approaches	53
3.4.3	Initial segment solutions entered into the Ensemble segmentation	53
3.5	Final motivation segmentation	54
3.5.1	Unconfident Fatalists	56
3.5.2	Live for Today's	60
3.5.3	Hedonistic Immortals	63
3.5.4	Balanced Compensators	66
3.5.5	Health-conscious Realists	69
3.5.6	Summary: motivation segments	72

3.6	Testing the motivation segments	73
3.7	Profile of motivation segmentation by health behaviours/health states	74
3.7.1	Smoking	74
3.7.2	Alcohol consumption	75
3.7.3	Drug taking	76
3.7.4	BMI score	76
3.7.5	Exercise	77
3.7.6	Five+ portions of fruit and vegetables per day	78
3.7.7	Mental health	78
3.8	Summary	79
<b>4</b>	<b>Environment Dimension</b>	<b>82</b>
4.1	Hypothesis	82
4.2	Initial development of the environment dimension and issues encountered	82
4.3	Potential ways forward	83
4.3.1	Validating the hypothesis	83
4.3.2	Next steps in the environment segmentation	86
4.4	Simplified approach	87
4.5	Environment solution based on IMD	87
4.6	Interaction between environment and motivation	91
4.7	Summary	97
<b>5</b>	<b>Lifestage</b>	<b>99</b>
5.1	Hypothesis	99
5.2	Bivariate description of the lifestages	100
5.2.1	Proportion of respondents in each lifestage	101
5.3	Refining the lifestages	101
5.3.1	The suggested lifestages	101
5.3.2	CHAID analysis	102
5.3.3	Revised lifestages	105

5.4	Profile of the lifestages	106
5.4.1	Age	106
5.4.2	Ethnicity	107
5.4.3	National Statistics Socio-Economic Classification	108
5.4.4	Qualifications	109
5.4.5	Financial situation	110
5.4.6	Region	111
5.5	Interaction between lifestage and other dimensions	112
5.6	Summary	114
<b>6</b>	<b>Health Behaviour</b>	<b>116</b>
6.1	Five+ portions of fruit and vegetables per day	116
6.1.1	Portions of fruit and vegetables by lifestage	120
6.2	Exercise	121
6.2.1	Physical activity by lifestage	122
6.3	Smoking	123
6.3.1	Smoking by lifestage	127
6.4	Alcohol consumption	128
6.4.1	Alcohol consumption by lifestage	130
6.5	Drug taking	131
6.5.1	Any drug	131
6.5.2	Class A drugs	134
6.5.3	Cannabis	135
6.6	Sexual health	137
6.7	Combinations of behaviours	138
6.7.1	Fruit/vegetable consumption, alcohol consumption and physical activity	138
6.7.2	Alcohol consumption, smoking and cannabis	140
6.7.3	Fruit/vegetable consumption, physical activity, alcohol consumption and smoking	145

6.8	Health states	148
6.8.1	Mental health	148
6.8.2	Body mass index	150
6.8.3	Long-term limiting illness	154
6.9	Summary	158
<b>Appendices</b>		<b>161</b>
<b>1</b>	<b>Project Advisory Group and SHA/PCT Reference Group</b>	<b>162</b>
<b>2</b>	<b>Questionnaire</b>	<b>164</b>
2.1	Audio Self-completion Questions	214
2.2	Showcard MA	219
<b>3</b>	<b>Response Rates</b>	<b>220</b>
3.1	Main sample (nationally representative) response rates	220
3.2	Deprived boost sample (10% most deprived areas) response rates	221
<b>4</b>	<b>Weighting</b>	<b>222</b>
4.1	Probability of selection	222
4.1.1	Weighting for differential chance of dwelling selection	222
4.1.2	Weighting for differential chance of household selection	222
4.1.3	Weighting for differential chance of individual selection	223
4.2	Geographic weights	223
4.3	Demographic weights	224
<b>5</b>	<b>Estimating the Design Effect on Sampling Errors</b>	<b>225</b>
5.1	Clustering	225
5.2	Probability of selection	226
5.3	Post-stratification weighting	227
5.4	Total design effect	228
<b>6</b>	<b>Inputs to the Motivation Ensemble</b>	<b>230</b>

<b>7</b>	<b>Final Motivation Solution</b>	<b>282</b>
<b>8</b>	<b>Environment Cluster Profiles</b>	<b>285</b>
<b>9</b>	<b>Deprivation and IMD Analysis</b>	<b>287</b>
<b>10</b>	<b>Hierarchical Cluster Analysis Details</b>	<b>291</b>
<b>11</b>	<b>Lifestages</b>	<b>293</b>
<b>12</b>	<b>Unit Scores</b>	<b>295</b>
<b>13</b>	<b>Standardisation and Centring of Respondents</b>	<b>296</b>
<b>14</b>	<b>Poly-behaviours by Deprivation within Motivation</b>	<b>297</b>
<b>15</b>	<b>The Allocation Questionnaires</b>	<b>300</b>
	15.1 The 19-item questionnaire and allocation algorithm	300
	15.2 The 6-item questionnaire and allocation algorithm	308

# Preface

The Healthy Foundations Life-Stage Segmentation Model uses consumer insight to inform local and national health improvement activities. The deeper level of understanding of both motivations and environmental influences provided by the Healthy Foundations survey can also be used when developing capacity to deal with identified local health needs.

Healthy Foundations takes an evidence based approach to understanding some of the population differences that influence behaviour and have an impact on health with a particular focus on health inequalities.

The model is based upon a random sample of 4,928 people across the ages of 16-74 in England, along with 52 focus groups and 45 in-depth immersion interviews. The model identifies five segments of different people with very different health behaviours and attitudes. These are Health Conscious Realists; Balanced Compensators; Hedonistic Immortals; Live for Todays and Unconfident Fatalists.

# Healthy Foundations in Action

There is clear evidence linking the impact of risk-taking behaviours to premature morbidity and mortality. There are also subsequent high costs to the individual, society and the NHS. The Healthy Foundations study has identified significant examples of multiple risk-taking behaviours in the key health segments it has defined. This information has been used to give a better understanding of lifestyles, particularly in the areas of smoking, alcohol and diet.

## The varying healthcare needs of segment profiles

The various segment profiles described in this report require different interventions and services, according to their specific needs.

Any redesign of interventions and services should meet these needs, and help inform workforce planning in the public health sector.

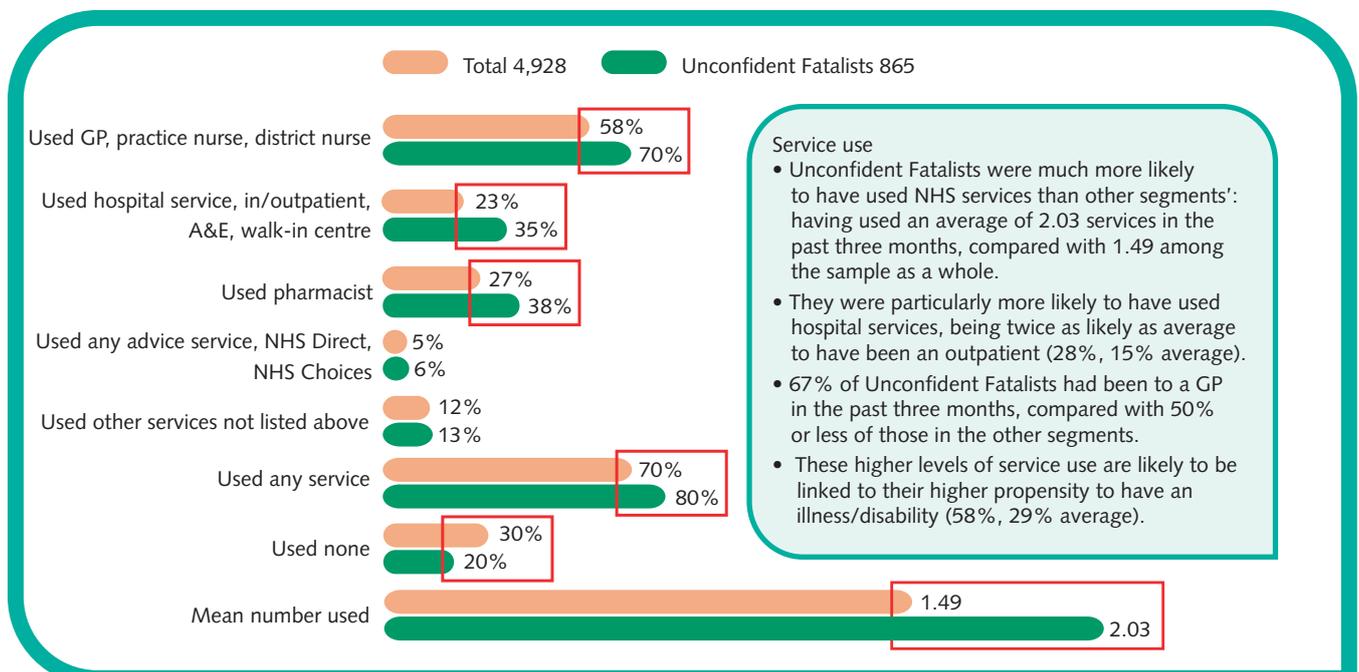
## High impact users

For example, the Healthy Foundations dataset identifies the segment Unconfident Fatalists as:

- living in deprived environments;
- experiencing the lowest confidence to engage in health-seeking behaviours; and
- experiencing the highest incidence of chronic disease.

The service utilisation data from the survey highlights Unconfident Fatalists as significantly greater users of health services. Their uptake of primary and secondary care services also exceeds that of other groups (see figure 1).

**Figure 1: Service use for Unconfident Fatalists over three months**

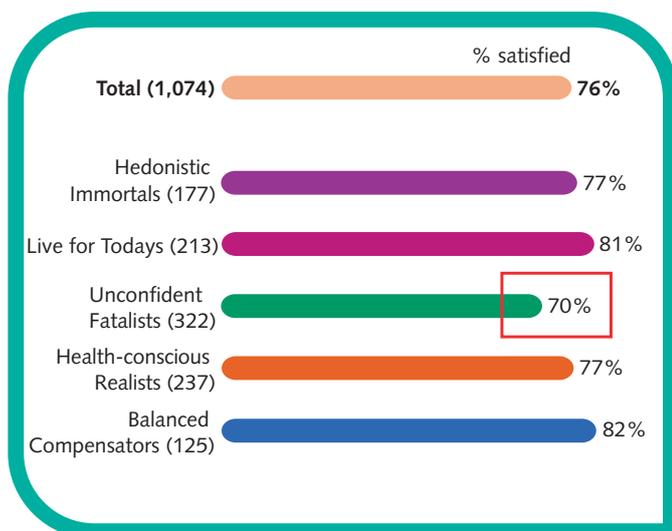


However, despite the evidence of greater service utilisation, Unconfident Fatalists have the worst health outcomes among the segments. They are also less satisfied with the services they have used (see figure 2).

High impact users of secondary care cost the NHS billions of pounds annually. The Healthy Foundations insights offer an understanding of the health-seeking motivations of this group who, despite high presentation to primary care and high recorded chronic disease, are also accessing secondary care.

This intelligence informs the appropriate targeting of interventions by assisting with the reform of services. This includes identifying training needs and the redesign of services, where relevant – resulting in increasingly efficient and cost-effective programmes with improved health outcomes.

**Figure 2: Satisfaction with service use among the heaviest service users**



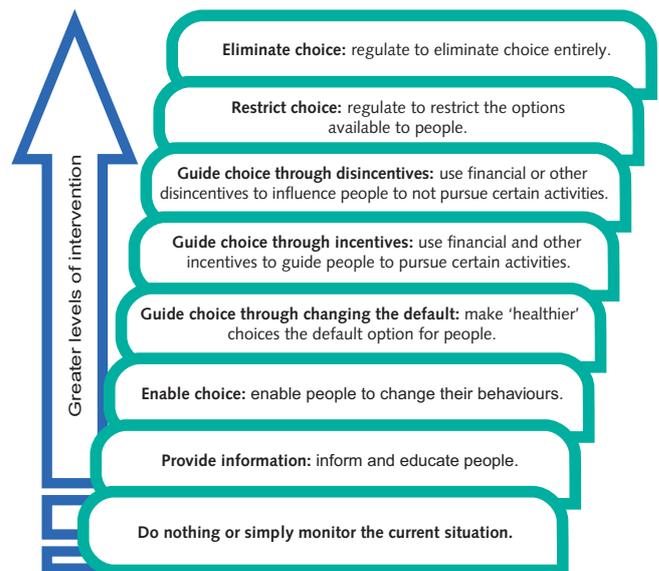
Base: Users of 3+ services in the past three months

## Addressing the training needs of the workforce

It is essential that front-line staff, service providers and health commissioners understand the different interventions required of them. Healthy Foundations health motivation segmentation can be used to aid this, as it clearly illustrates the difference in motivation and intensity of intervention required.

As set out in the public health White Paper, *Healthy Lives, Healthy People*,<sup>1</sup> the Nuffield Council on Bioethics' 'intervention ladder' (see figure 3) is critical in informing the commissioning and delivery of interventions.

**Figure 3: A ladder of interventions**



## Putting 'every contact counts' into practice

Guidance from the National Institute for Health and Clinical Excellence (NICE) recommends an 'every contact counts' approach to accessing behaviour change intervention. To achieve this, sufficiently scaled-up behaviour change competencies are required across the public sector front line. Front-line staff should be trained in the type and scale of intervention

1. HM Government, *Healthy Lives, Healthy People: Our strategy for public health in England*, November 2010.

required from them. This will ensure that there is an appropriate response to public and patient motivational differences.

The Healthy Foundations cluster chart (see figure 4) could be added to training packages for front-line staff. It will be useful for highlighting the difference in healthcare needs and the response required for successful outcomes.

### A holistic approach to cross-issue working

In addition to data on health status, behaviour and attitudes, the Healthy Foundations survey includes information on psychological concepts such as:

- self-esteem;
- locus of control (the extent to which people believe that they can control events that affect them); and
- personal aspiration.

There is also data on the environmental impact of social and material deprivation on these segments, including information on:

- housing;
- household employment;
- benefits status;
- social capital; and
- views about their neighbourhood.

This variety of information helps build a holistic assessment of people's motivations and their ability to change within their social and economic environments. It also helps us to understand how these factors vary by lifestage – another variable captured in this study. These insights can lead to more effective interventions.

The drivers of poor health-seeking behaviours include:

- low self-efficacy;
- low self-esteem;
- fatalism;
- material and social deprivation; and
- diminished control over personal circumstances.

These factors can lead to other negative-impact behaviours that get in the way of a person's ability to develop social networks, plan for the future, set goals, make pension provision, re-train and develop new skills.

Looking at people's lives in the context of these drivers of behaviour will result in more holistic and successful interventions.

### How motivation can influence behaviour

The Healthy Foundations survey provides a rich insight into how these motivations can influence behaviour.

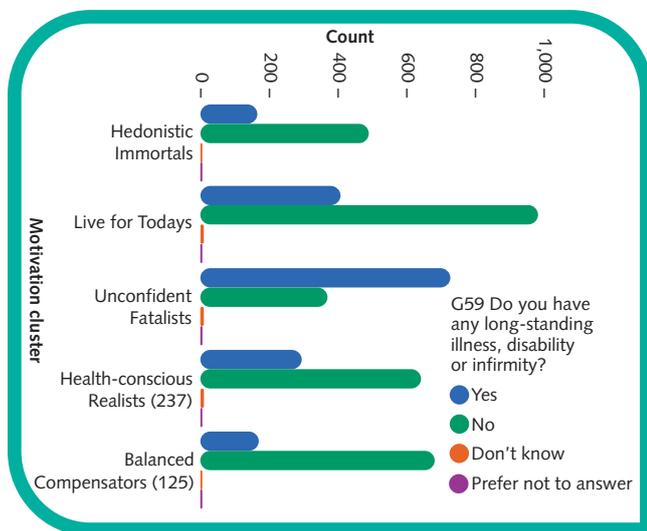
For example, the General Health Questionnaire (GHQ-12), which provides a measure of mental health, was included in the survey. According to this questionnaire, a respondent who scored 4 and above on a 12-point scale could have mental health problems. Analysing this by segment type revealed that over a third of Unconfident Fatalists scored highly on this measure, nearly double the proportion of other segments.

In addition, Unconfident Fatalists from the most deprived areas were most likely to be receiving treatment for depression (data showed that 25% of those from the most deprived areas said they were, compared with 19% of those from the mid-deprivation group

and 11% from the least deprived areas). Unconfident Fatalists from the least deprived areas were still more than twice as likely as any other segment to say that they were receiving treatment for depression.

In terms of physical health, this segment was also much more likely to report a limiting, long-standing illness and to be receiving disability living allowance (see figure 4).

**Figure 4: Data on long-standing illness, disability and infirmity**



This data shows the strong relationship between personal motivation, material deprivation and mental and physical wellbeing within this segment. As a result, just targeting their current behaviours – e.g. smoking or alcohol use – may not be the best starting point with this group. A higher level intervention, targeting the circumstances and attitudes that produced these behaviours, would be more likely to result in better health outcomes for them. For example, this could involve using cognitive behavioural approaches to improve their self-esteem, encouraging them to undertake positive health-seeking behaviours, coupled with improvements to their social and material circumstances.

In addition, improving this segment’s ability to plan for their future and to take more control over their lives will have a positive effect in other areas.

### Targeting the individual as a whole

Generating a holistic understanding of demotivated people living in deprived circumstances is a realistic starting point in developing effective, joined-up interventions which target individuals rather than their risky health behaviours.

The movement of provision of public health to the local authority provides an excellent opportunity to develop a comprehensive and strategic approach to doing this.

# Executive Summary

As part of the government's objective to develop insight into people's attitudes and behaviour, the Department of Health (DH), working with academic and commercial research agencies, has developed a segmentation of the adult population of England based on behaviour, attitudes and lifestyle.

Segmentation can be a powerful tool in understanding subgroups of the population and focusing resources where they are most needed. Moving beyond demographics and factoring in attitudinal and psychographic data (a person's overall approach to life, including personality traits, values and beliefs) provides a more rounded picture of individuals and is a good starting point for developing tailored interventions.

When segmenting a population, the aim should be to define a small number of groups so that all members of a particular group are as similar to each other as possible and are as different as possible from the other groups.

A good segmentation should:

- build on current knowledge;
- provide a language for understanding people;
- add value and greater sophistication when developing and targeting interventions; and

- not be too complicated and be accessible to local practitioners, who should be able to re-create the segments in their own research.

With these guidelines in mind, DH has developed a segmentation of health-related attitudes and behaviour.

Over the past three years, a number of research studies have been conducted. These have included:

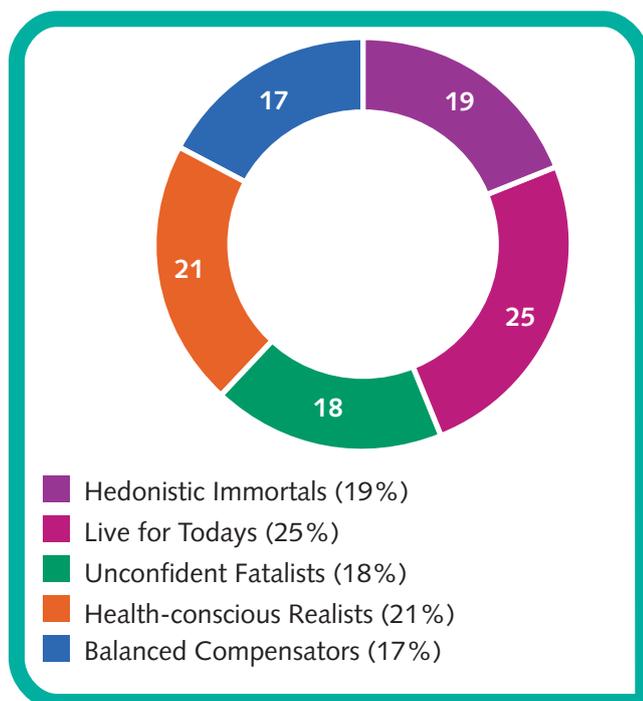
- reviews and consultations with internal DH staff, strategic health authority (SHA) and primary care trust (PCT) representatives, public health research experts, marketing segmentation experts, statisticians and social researchers from the public and private sectors;
- a large-scale quantitative survey (a random sample of 4,928 people aged 12–75 years in England) to construct and size the segments; and
- large-scale qualitative research and ethnography, comprising 52 focus groups and 45 immersion depths (three hours with each respondent describing their life and the area they live in) to explore in detail their lifestyles and motivations, and the behavioural intervention approaches that might work for them (the results of this work are presented in the second report to emerge from this research programme).

## The motivation segments

The survey research data (described in this report) was subjected to a cluster analysis which identified five key segments, as shown in figure ES1.

These groups can be found within every social stratum – from the most deprived to the most affluent. A fuller qualitative and quantitative description of each segment can be found in the research reports available on the NSMC/One Stop Shop website.

**Figure ES1: The five motivation segments**



Brief descriptions of each group are given in the 'pen portraits' that follow.

### Unconfident Fatalists

Overall, they feel fairly negative about things, and don't feel good about themselves. A significant proportion feel depressed. They feel that a healthy lifestyle would not be easy or under their control. Generally, they don't feel in control of their health anyway. They are quite fatalistic about health and think that they are more likely than other people of the same age to become ill. Their current lifestyles aren't that healthy, and their health isn't currently as good as it could be. They know that their health is bad and that they should do something about it, but feel too demotivated to act.

### Live for Todays

They definitely like to 'live for today' and take a short-term view of life. They believe that whatever they do is unlikely to have an impact on their health, so 'what's the point?'. They tend to believe in fate, both where their health is concerned and for other things in life. They value their health but believe that leading a healthy lifestyle doesn't sound like much fun, and think it would be difficult. They don't think they are any more likely than anyone else to become ill in the future. They tend to live in more deprived areas which gets them down, and they don't feel that good about themselves, but they feel more positive about life than the Unconfident Fatalists. They are the segment who are most likely to be resistant to change and don't acknowledge that their behaviour needs to change, unlike the Unconfident Fatalists.

### **Hedonistic Immortals**

These are people who want to get the most from life and they don't mind taking risks – as they believe that this is part of leading a full life. They feel good about themselves and are not particularly motivated by material wealth or possessions, or how they look. They know that their health is important to avoid becoming ill in the future, but feel quite positive about their health at the moment and don't think they'll be becoming ill any time soon. Maybe because of that they don't really value their health right now. They are not fatalistic about their health and don't have a problem with leading a healthy lifestyle, believing that it would be fairly easy and enjoyable to do so. They say they intend to lead a healthy lifestyle. However, they feel that anything that is enjoyable, such as smoking and drinking, cannot be all bad.

### **Health-conscious Realists**

These are motivated people who feel in control of their lives and their health. They generally feel good about themselves, but have more internally focused aspirations to better themselves, learn more and have good relationships, rather than just aspiring to looking good and acquiring wealth. They tend not to take risks and take a longer-term view of life, and that applies to their health too. Their health is very important to them, and they feel that a healthy lifestyle is both easy to achieve and enjoyable. They also take a realistic view of their health: of all the segments, they are the least fatalistic about their health, and don't think they are any more or less likely than other people to become ill. Unlike the Balanced Compensators, they don't use compensatory mechanisms. This may be because they are so health conscious that there's no need for them to balance out health behaviours.

### **Balanced Compensators**

They are positive and like to look good and feel good about themselves. They get some pleasure from taking risks. However, they don't take risks with health. Health is very important to them, and something they feel in control of. A healthy lifestyle is generally easy and enjoyable. They are not fatalists when it comes to health and understand that their actions impact on their health both now and in the future. They believe they are much less likely to become ill than their peers. If they do take some health risks, they will use compensatory mechanisms to make up for this, such as going for a run in the morning having eaten a big meal or drunk too much the night before.

Figure ES2: Summary of motivational differences between the motivation segments

Motivational construct	Segment				
	Health-conscious Realists	Balanced Compensators	Live for Today's	Hedonistic Immortals	Unconfident Fatalists
Value health	High	High	Med	Low	Med
Control over health	High	High	Med	Med	Low
Healthy lifestyle is easy/enjoyable	High	High	Low	Med	Low
Health fatalism	Low	Med	High	Low	High
Risk-taking	Low	High	Med	High	Med
Short-termism	Low	Med	High	Low	High
Self-esteem	High	High	Med	High	Low

Key ■ More positive motivation

■ More negative motivation

### Analysis by deprivation

These five segments are present in all areas of England, including the most affluent and the most deprived areas. The five segments have been further divided by levels of deprivation, using the Indices of Multiple Deprivation (IMD), resulting in 11 distinct segments (see figure ES3).

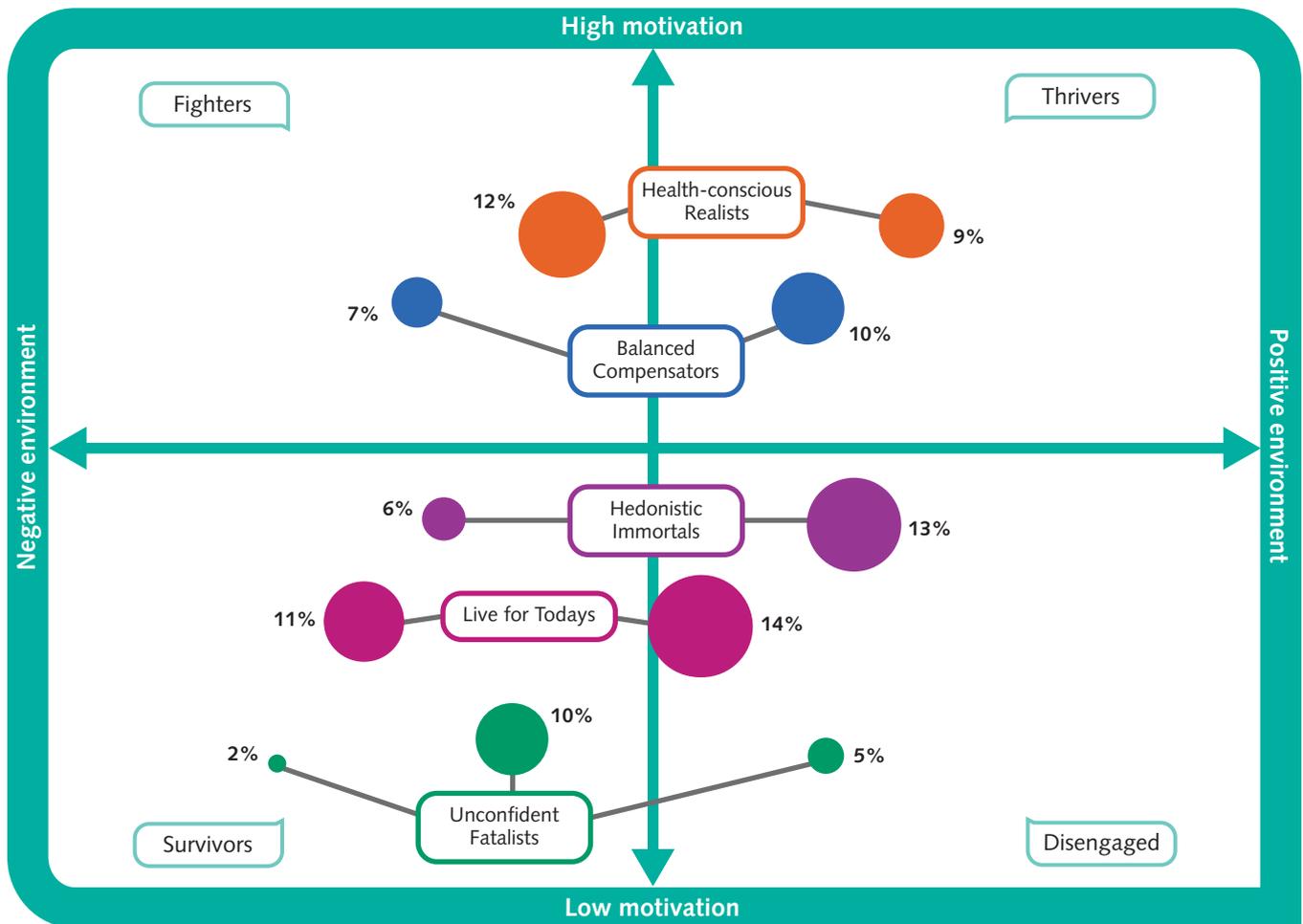
The percentages next to each segment bubble represent the percentage of the adult population in England. Even the smallest segment – the Unconfident Fatalists living in the most deprived areas of England – represents approximately 800,000 adults aged 16–74 (2% of the adult population).

The segmentation captures the dynamics between an individual's personal motivation to live healthily (the **motivation** dimension of the segmentation) and how these motivations vary within the context of their social and material circumstances (the **environment** dimension of the segmentation). The segmentation also captures the variation in these measures by lifestyle.

Looking at figure ES3, the quadrant names 'fighters', 'survivors', 'thrivers' and 'disengaged' summarise the general state of the segments within each quadrant.

**Survivors** (Hedonistic Immortals, Live for Today's and Unconfident Fatalists living in more deprived areas) tend to be people living in negative health environments who have a lower level of motivation to look after their health. Within this group there will be many people with unhealthy behaviours, and a higher proportion than average will have poor health. Their position on the motivation scale indicates that they feel less control over their health and have less confidence in their ability to do anything about improving it or preventing ill-health. Their position on the environment dimension indicates that they will be living in more deprived circumstances, which will make it more difficult for them to change their lifestyle. Moreover, in some of the most deprived communities in England, the social norms make it difficult for those wishing to change. For example, levels of smoking prevalence can be over 50% in some areas,

Figure ES3: Dividing the motivation segments by Indices of Multiple Deprivation



making the process of giving up much more difficult. If one of the main purposes of segmentation is to target resources where they are needed, then these segments would clearly be a priority for appropriately tailored interventions and services.

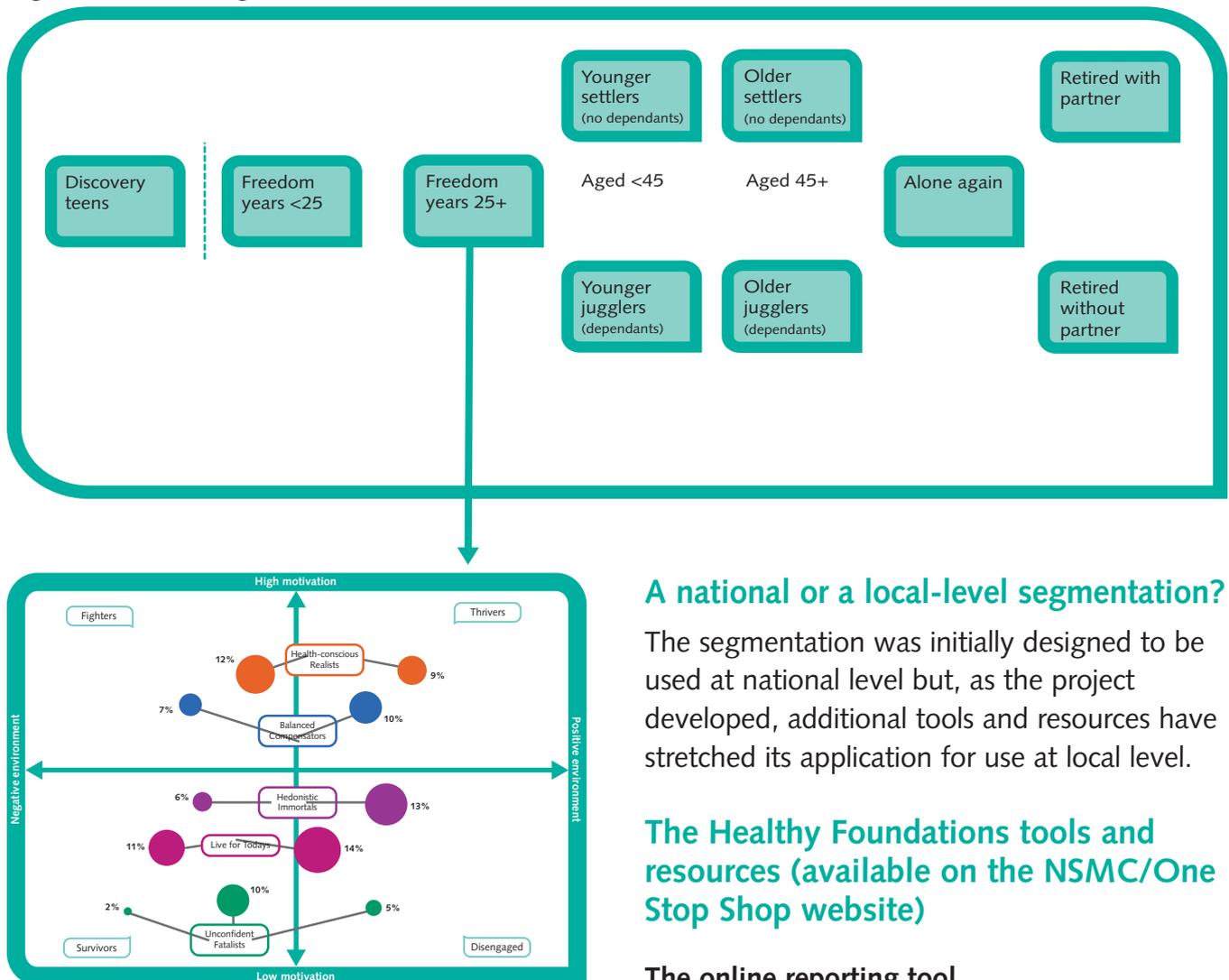
**Fighters** (Health-conscious Realists and Balanced Compensators living in poor areas) are people living in negative health environments, but who are standing above their norms and have a higher level of motivation to look after their health. These segments live in the same conditions as the ‘survivors’ group; indeed, some of them may be in the same family. There may be a number of reasons why they have managed to maintain a healthier lifestyle and exhibit a degree of resilience to the deprivation

surrounding them. Whatever the reasons which emerge from research, this group has potential to influence their ‘survivor’ group peers.

**Disengaged** (Hedonistic Immortals, Live for Todays and Unconfident Fatalists who are living in less deprived areas) are people living in more positive health environments who, for a range of reasons, have a low level of motivation or ability to look after their health.

**Thrivers** (Health-conscious Realists and Balanced Compensators who are living in less deprived, more health-positive environments) are people who have a higher level of motivation to look after their health and feel more able to do so. They are surrounded by the resources and positive norms to help make that happen.

Figure ES4: Lifestage



### Lifestage

As a person travels through different lifestages there are numerous events and opportunities associated with that lifestage which can precipitate healthy or unhealthy behaviours. In this segmentation, lifestage has been defined by nine groups. Within each group the distribution of the segments can be calculated. For example, the 'Freedom years' lifestage will have its own distribution of Balanced Compensators, Unconfident Fatalists, and so on.

### A national or a local-level segmentation?

The segmentation was initially designed to be used at national level but, as the project developed, additional tools and resources have stretched its application for use at local level.

### The Healthy Foundations tools and resources (available on the NSMC/One Stop Shop website)

#### The online reporting tool

The online reporting tool is a web interface which displays the data in an accessible form and permits the user to conduct their own analysis by region, lifestage and motivation segment.

#### Reports and summaries

This document is the report of the quantitative survey and provides the background to all of the Healthy Foundations work. A large-scale qualitative study exploring each of the segments in more depth was conducted following this survey. A full report on the qualitative findings can also be found on the NSMC/One Stop Shop website. A summary of all the Healthy Foundations projects is also available online.

### **Synthetic estimates**

Applying a similar methodology to that used by the Health Survey for England, synthetic estimates of the distribution of the segments within a local area can be calculated. Using census data and the Healthy Foundations survey, a modelled estimate of the size of the segments within a local authority can be generated.

### **The allocation algorithm – ‘the profiler’**

The original questionnaire for this study was just over an hour long. Using just 19 question items from the study it is possible to allocate respondents to one of the five motivation segments to an accuracy of 88%. Using just six question items it is possible to allocate respondents to one of the five motivation segments to an accuracy of 67%. Either of these small questionnaires can be added to existing national and local health and lifestyle questionnaires to identify the segment grouping for each respondent.

### **The Target Group Index**

The existing one-hour questionnaire, while having many useful attitudinal and behavioural measures, cannot cover all aspects of people’s health and lifestyles. To augment the Healthy Foundations survey, the data has been fused with the Target Group Index (TGI) survey. TGI is a large-scale consumer survey which has been in operation for over 20 years and which provides insight into consumer buying behaviour, consumption of media, what people do in their spare time, etc. Fusing the Healthy Foundations survey with TGI will help build up a more holistic view of people’s lives.

### **Geodemographics**

Another way to augment the existing dataset and add more detail to the resulting segments is to merge the data set with a geodemographic tool. As postcode data are collected for each individual, this can be the bridge to profile people by geodemographic variables. Several new projects are aiming to combine the Healthy Foundations segmentation with existing geodemographic data sets such as MOSAIC, ACORN, People and Places and OAC to further enhance the geographic targeting of segments.

### **Training**

A nationwide regional training programme was rolled out between April and June 2010.

### **Next steps**

This project has produced a strategic segmentation of the adult population of England and has achieved its aim of producing an accessible analysis which captures some of the complexity of people’s lives. By defining distinct groups of individuals by their personal motivations and beliefs within the context of their social and material circumstances, the research has provided robust insights into what motivates and demotivates people to change their behaviours. Furthermore, the work is providing useful pointers as to what type of interventions have the best chance of success.

The segment definitions are being adopted by a number of national programmes. At the local level, six PCTs have begun to use the segmentation to inform their strategic commissioning and to include the allocation algorithm in their health and lifestyle surveys. Following the training programmes in 2010, it is expected that uptake will continue to increase.

# 1 Introduction

This report is the summary of a Department of Health (DH) project aimed at developing a cross-issue segmentation of the population to provide the basis for a strategic approach to health promotion in England. The overall objective was to provide DH with a much more coherent view of the nation by segmenting the population into different target audience groups, based on their health motivations and attitudes, personal circumstances and ability to lead healthier lives.

## 1.1 Context

In June 2006, the National Social Marketing Centre (NSMC) launched its report on the viability of developing a national social marketing strategy across DH health improvement programmes.<sup>2</sup> The report highlighted how DH could deliver improved levels of public health through the adoption of social marketing processes and techniques. Included was a recommendation that DH should develop a long-term social marketing strategy.

The report also highlighted that traditional 'push' (prescriptive/didactic) approaches to message delivery may not be the most effective or efficient way of delivering lasting health-related behavioural change. Increasing awareness about key health issues was not

translating into action and behavioural change and hence there was a need for a better understanding of people's circumstances, what prevented them from taking action, and which services or interventions would most help them.

Some health improvement programmes are poorly targeted. Indeed, a criticism of health promotion is that it can contribute to the widening of health inequalities by disproportionately affecting the most affluent in society, who are often more able to act on the messages. Using a social marketing approach can limit this effect and ensure that interventions can better help those that need them most.

For example, the key to some aspects of health improvement for particular deprived groups may lie in addressing environmental factors such as poor services or lack of access to exercise facilities. The decision in public health terms might be to prioritise these structural issues, as attempting to change behaviours alone may be unrealistic. Segmentation approaches can help with identifying these priorities and can enable the setting of more realistic and achievable goals for those living in difficult circumstances.

Underpinning social marketing is the requirement to develop approaches which build on an insight into peoples lives. The development of methods to capture insight is becoming more widespread across the UK government. Many government departments

2. NSMC, *It's our health! Realising the potential of effective social marketing*, National Consumer Council, June 2006.

now have their own 'insight unit' developed as a consequence of Sir David Varney's review of service transformation in which insight is defined as:

*"A deep truth about the citizen based on their behaviour, experience, beliefs, needs or desires, that is relevant to the task or issue and rings bells with targeted people."*<sup>3</sup>

The review concluded that 'we need to exploit customer insight as a strategic asset'.

The demand for greater insight into consumers' attitudes, motivation and behaviour has been fuelled by the increasing requirement to address the societal costs of ill-health, which in turn has stimulated the production of numerous reports on behaviour change and behavioural economics.<sup>4,5,6,7,8,9</sup> Developing customer insight still has a long way to go in the public sector. A report on the use of consumer data by primary care trusts (PCTs) working with deprived communities in the UK revealed that, despite a desire to develop a greater understanding of people living in deprived communities and some excellent examples of interventions aimed at marginalised groups, there was a clear need for guidance, training and resources on how this could be done.<sup>10</sup>

## 1.2 What can a social marketing approach offer?

Social marketing techniques can also be applied to create more effective supportive environments for individual behaviour change, e.g. workplace anti-smoking programmes, smoking cessation services and helpline support. Furthermore, they can be successfully applied in redesigning services to meet customer need.

A fundamental objective of any social marketing strategy is to develop a stronger focus on understanding people and use these insights to inform local and national health improvement activities. Constructing a segmentation of the population was a key step towards achieving this aim.

Insight and segmentation underpin effective social marketing and can be powerful tools in helping to understand diverse subgroups and focusing resources where they are most needed. Segmentation is a process of looking at the audience or 'market' and seeking to identify distinct subgroups (segments) that may have similar needs, attitudes or behaviours.

People are regularly segmented into groups: we talk about adults who are working and adults who are unemployed, smokers and non-

3. Sir David Varney, *Service transformation: A better service for citizens and business, a better deal for taxpayers*, TSO, December 2006.
4. G. Lister, R. Fordham, D. McVey et al, *Evaluating the societal costs of potentially preventable illness: Developing a common approach in Future public health*, Palgrave Macmillan, 2009.
5. D. Knott, with S. Muers and S. Aldridge, *Achieving Culture Change: A Policy Framework*, discussion paper by the Strategy Unit, Cabinet Office, January 2008.
6. E. Dawney and H. Shah, *Behavioural economics: seven principles for policy-makers*, New Economics Foundation, July 2005.
7. National Institute for Health and Clinical Excellence (NICE), *Behaviour change at population, community and individual levels*, NICE public health guidance 6, October 2007.
8. M. Lewis, *States of Reason: Freedom, responsibility and the governing of behaviour change*, Institute for Public Policy Research, July 2007.
9. N. Bacon, M. Brophy et al, *The State of Happiness: Can public policy shape people's wellbeing and resilience?*, The Young Foundation, 2010.
10. S. Mathrani, *Sharpening the Spearhead: Customer-focused public health information to tackle health inequalities*, NSMC, March 2008.

smokers, and we subdivide these further by social class, ethnicity, level of income, use of public services and neighbourhood type, and by their attitudes and their motivation to change. When segmenting populations, the aim should be to define a small number of groups so that all members of a particular group are as similar to each other as possible and are as different as possible from the other groups. Some of the key attributes of a good segmentation are that it should build on current knowledge; provide a language for understanding people; add value and greater sophistication when developing and targeting interventions; not be too complicated; and be accessible to local practitioners who should be able to re-create the segments in their own research.<sup>11</sup>

Traditionally, segmentation in the health area has focused on the use of individual and household attributes such as age, gender, household composition, income, social class and physical status. However, adding in 'attitudinal' and 'psychographic' factors (personality traits, values, beliefs, preferences, habits and behaviours) results in a much more rounded understanding of subgroups of the population. This in turn will result in more appropriately targeted and tailored interventions.

### 1.3 The segmentation approach

Many segmentations within the public sector are constructed using existing knowledge, attitude and behaviour studies designed to

provide prevalence estimates. The available measurements from these surveys are put into cluster analysis programmes to produce profiles. While this can produce some useful analysis, the surveys from which the data is drawn are not generally designed with a segmentation analysis in mind. Dimensions which are important for profiling individuals, e.g. self-esteem measures and environmental deprivation indices, may not be in the questionnaire and hence not in the segmentation descriptions. Many government health surveys, while being methodologically rigorous and fit for the purpose for which they are designed, i.e. prevalence estimation, do not have the necessary breadth and do not include the necessary measures to produce the profiles required for attitudinal segmentation. Some focus on the key issues under investigation, e.g. smoking, and may add in a few questions on alcohol. A sexual behaviour survey may ask some useful attitudes and behaviour questions on alcohol and drugs. Some surveys, for example, the Health Survey for England (HSE),<sup>12</sup> include many behavioural measures covering most (but not all) of the key public health priorities. This survey also includes GHQ-12 and some indicators of social capital, all of which will be useful for profiling.

Given the limitations of existing surveys, for this project DH consulted many experts about the sort of dimensions and measures that should be input into segmentation, and then tested this resulting hypothesis with a bespoke survey of the population.

11. D. McVey and L. Walsh, Generating 'insight' and building segmentations, in J. French, C. Blair-Stevens, D. McVey and R. Merritt (eds), *Social Marketing and Public Health: Theory and Practice*, Oxford University Press, 2009, pp. 104–5.

12. The Information Centre for Health and Social Care, Health Survey for England.

## 1.4 Creating the hypothesis

The strategic consultancy Ingram was engaged by DH to work with the Central Office of Information (COI) and the NSMC to help develop a framework for segmenting the population on health issues. The aim was to build on existing research and knowledge within DH and academia to create a segmentation of the population that reflected the 'drivers' (attitude, belief or circumstance) of behaviour across the areas of smoking, obesity, alcohol, substance misuse, sexual health and mental health.

The segmentation would provide the basis for a cross-issue view of the population, enabling DH to pinpoint more accurately where to find those that most needed support.

The segmentation hypothesis was developed in three key phases.

- Mapping priorities:
  - mapping the key targets and policy priorities.
- Data gathering and synthesis to identify the key drivers of behaviours affecting public health:
  - a thorough review of existing research within DH and COI (covering academic and strategic reviews, quantitative studies and qualitative work); and
  - interviews/working sessions with key DH stakeholders from across the relevant health areas.

- Segmentation development:
  - using the findings from phases 1 and 2 to develop a framework for the segmentation; and
  - interrogating and refining this segmentation approach using working sessions/workshops with key experts.

A wealth of research and expertise in DH, the public health field and beyond has informed this work to give an accurate and rich understanding of the factors affecting people's ability to look after their health.<sup>13</sup>

It has been, by necessity, an iterative process – refinements and adjustments have been made throughout as a result of workshops, interviews and new research becoming known. The six health issues examined were:

- obesity;
- mental health;
- sexual health;
- smoking;
- alcohol; and
- substance misuse.

## 1.5 Research review

More than 80 reports were identified and reviewed for relevance, including published and unpublished quantitative and qualitative research. Reports were selected for detailed reading based on their relevance to the six health issues; depth of coverage (large-scale quantitative and strategy development research); and origination date. The list of reports identified was reviewed by the COI Research Unit and further supplemented by suggestions from DH and the NSMC.

13. DH, *Healthy Foundations: A segmentation model*, 2008.

## 1.6 Issue mapping

Behavioural 'drivers' and 'barriers' were mapped to identify any commonalities across existing target audiences and health issues with regard to:

- behaviour/lifestyle;
- attitude towards health, decision-making priorities, aspirations (and other shared attitudes which may affect health behaviour); and
- knowledge, attitudes and beliefs forming the basis of current behaviours.

Additionally, this mapping process revealed any behavioural or demographic groups where information was weak or missing.

## 1.7 Synthesis and validation

Ingram and COI conducted interviews with DH stakeholders to confirm whether the drivers identified matched the stakeholders' own understanding and to identify which of the drivers had greatest priority or significance in their policy areas. Drawing on established behaviour change theories, workshops with key members of DH, health professionals and academics were convened to review the research analysis and identify attitudinal drivers common across different audience groups and issues.

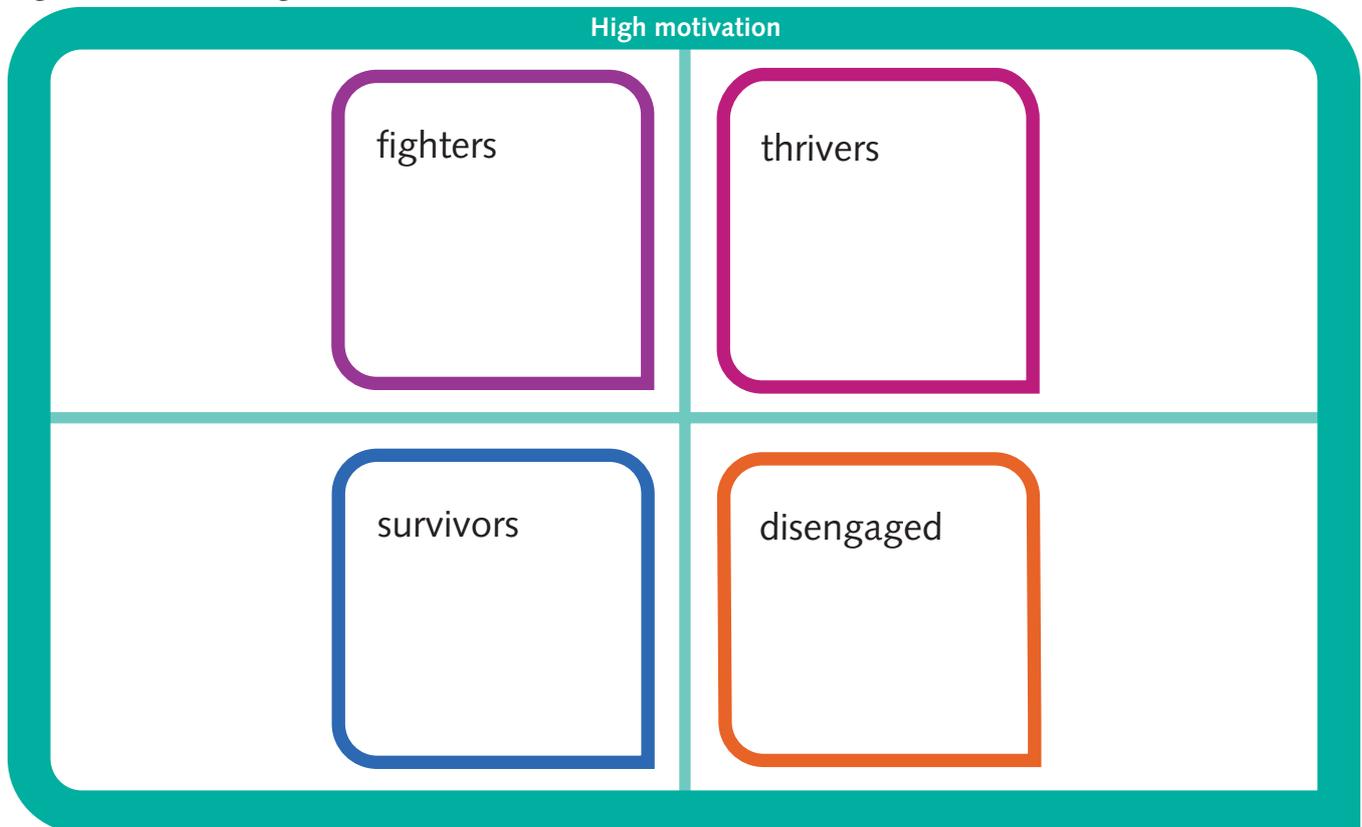
## 1.8 The segmentation model

After the process of sharing these common factors at interviews and workshops, three overarching 'dimensions' were identified as having the greatest significance when identifying population segments that are more at risk of adopting behaviour detrimental to their health. These were:

1. age/lifestage;
2. the 'environment dimension', i.e. circumstances/environments in which people live; and
3. the 'motivation dimension', i.e. attitudes/beliefs about health and their ability to take control of their life and health.

These three dimensions work in concert to determine people's ability to live healthily and their likelihood of doing so. The development and refinement of each axis is discussed in detail in sections 3, 4 and 5 of this report.

**Figure 1.1: Basic segmentation schematic**



Combining dimensions 2 and 3 together produces a basic segmentation schematic from which interesting segments begin to emerge (see figure 1.1).

### 1.9 The four subgroups

These subgroups have been given names to indicate the principal dynamic of their circumstances:

- Thrivers – people living in positive environments who have a high level of motivation to look after their health. This group appear to be on the right track and are probably least in need of attention.
- Survivors – people living in negative environments who have a low level of motivation to look after their health. These people are not living healthy lifestyles and do not feel able to do so. They are likely to be living in more deprived neighbourhoods, be poorer and are more likely to be surrounded by negative social norms. Their local health and other services may be poorer in comparison with other areas and will need transforming. Research into this segment may conclude that increasing personal motivation and ability change can only be achieved by first addressing some of the structural factors and wider determinants impinging on people's lives.

- **Fighters** – people living in negative environments but who are standing above their norms, and have a high level of motivation to look after their health. These are a particularly interesting group as they are exhibiting resilience in difficult circumstances. They are living in deprived areas and are experiencing the same social norms as the survivors; in fact, they could be a survivor's brother or daughter or friend. In intervention terms they could be targeted to help improve the health of survivors in their social and family circles
- **Disengaged** – people living in positive environments who, for some reason, have a low level of motivation to look after their health. For some of the younger respondents this low motivation might be a conscious rebellion. For parents it might be that they are putting their children's health first at the expense of their own.

### 1.9.1 Lifestage

As a person travels through different lifestages there are numerous events and opportunities associated with each lifestage which can precipitate healthy or unhealthy behaviours. In this hypothesis nine adult lifestage groups were identified. Segmenting each lifestage into the above four groups creates a potentially rich and consistent segmentation. It should be acknowledged that working with three dimensions rather than two is relatively unusual in segmentation. However, it is clear from research that the ambition of the task (looking across the entire population on a range of health issues) requires this extra level of sophistication if interventions are to be sufficiently relevant and compelling.

The final segmentation hypothesis is expressed in figure 1.2.

### 1.10 Personal agency versus structure

What is captured in this simple and intuitive segmentation schema is the interaction between **structure** and **agency**. The debate surrounding the influence of **structure** and **agency** on human thought and behaviour is one of the central issues in sociology. In this context, 'agency' refers to the capacity of individuals to act independently and to make their own free choices; 'structure' refers to those factors such as social class, religion, gender, ethnicity, customs, etc. which seem to limit or influence the opportunities that individuals have.<sup>14,15</sup>

To a fair degree the two dimensions of the segmentation (motivation/environment) reflect the personal agency/structure variables and in doing so capture a key feature neglected in many segmentations i.e the influence of social and material deprivation and social inequalities on personal motivations to change, and vice versa.

### 1.11 Targeting inequalities and deprivation

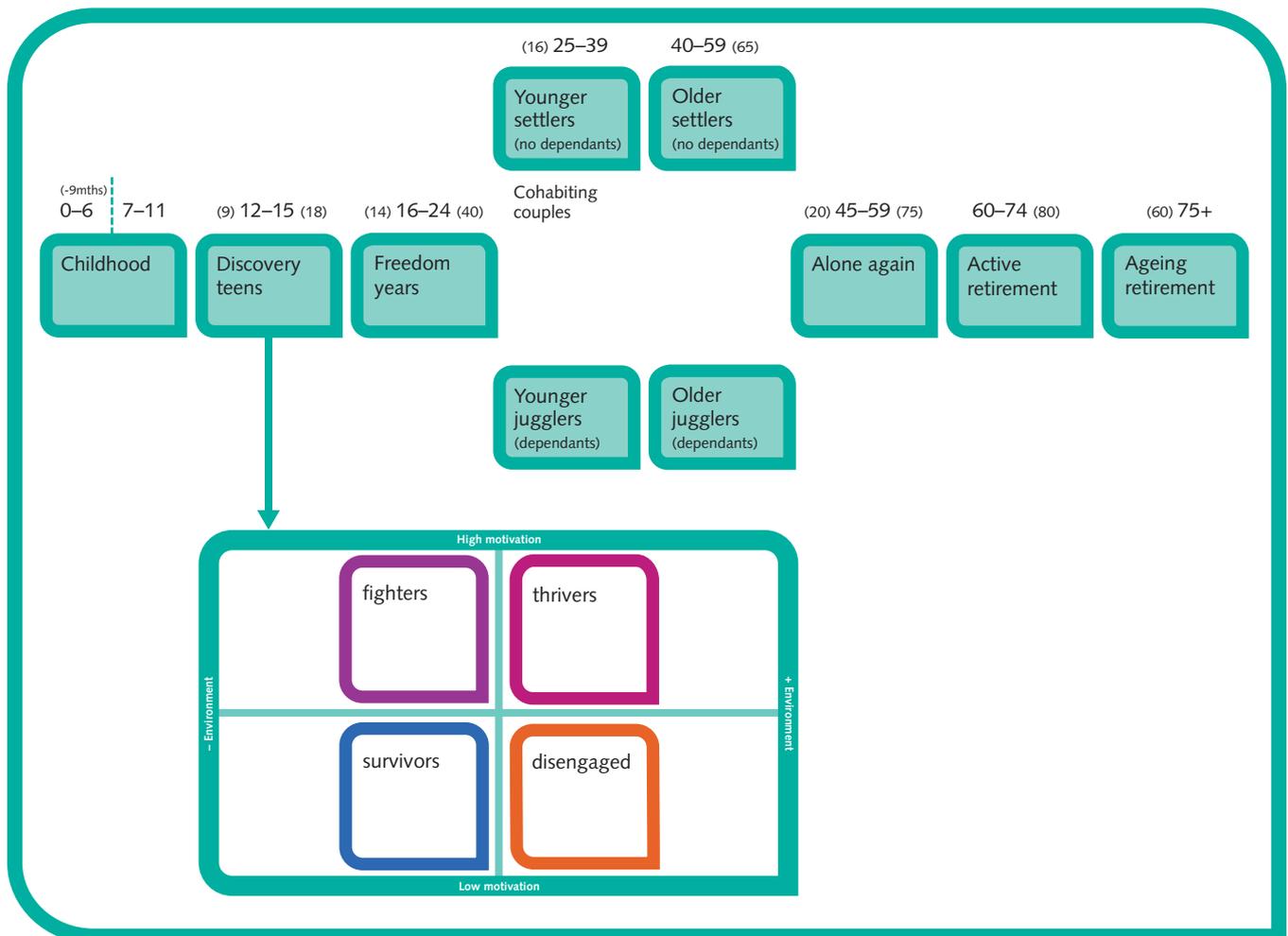
One of the primary aims of this segmentation is to locate the greatest need in the population and to identify what can reasonably be achieved by typical intervention approaches and suggest when new approaches should be applied to groups in the most disadvantaged segments.

Some of the existing individual approaches to prevention may not work with some subsets of the socially and materially deprived groups.

14. P. Berger and T. Luckmann, *The Social Construction of Reality: A treatise in the sociology of knowledge*, Anchor Books, 1966.

15. G. Ritzer, *Modern sociological theory* (5th edition), McGraw-Hill, 2000.

**Figure 1.2: The complete segmentation hypothesis**



More upstream approaches looking at, for example, reorientating service provisions may be the most productive route. One of the key features of the segmentation will be to articulate these nuances at the general population level. The population-level analyses will not provide the detailed regional analysis but rather the overarching analysis of the relationship between lifestage, environment and personal motivation and the detailed description of the segments that emerge from this framework. Moreover, a comprehensive research programme associated with this work has explored the segments in more depth using qualitative and ethnographic techniques (see section 1.14 for more details). Further research will also explore the possibilities of people

moving between segments. This macro-analysis will be useful in providing a backdrop to local research and implementation strategies. The tested methodologies employed nationally could be replicated locally using standardised instruments.

### 1.12 Identifying resilience

Health research often focuses on illness, rather than on positive health or well-being. For example, it is clear that adverse life circumstances usually lead to a much greater chance of ill-health; however, there are people and places which seem to get by, cope or even thrive, despite the adversity they experience and can be described as exhibiting resilience. Clearly, there are assets within individuals and

communities which can be overlooked when focusing too sharply on the deficits.

The concept of protective resilience, i.e. that positive characteristics acquired at one phase of life may enable individuals to withstand later adversity, have to some degree been explored with longitudinal data which allows an examination of these processes over time. Analysis indicates that the style of parenting encountered during early childhood may act as a source of resilience in the face of educational disadvantage and lead to greater social mobility.<sup>16</sup> However, the resilience concept includes more than just good parenting style. Resilience is a multifaceted phenomenon that encompasses personal and environmental factors that interact in a synergistic fashion to produce competence despite adversity. People who are resilient from poverty and stress share many characteristics and have some similar protective experiences. Werner distinguished three contexts for protective factors for young people: **personal attributes**, including outgoing and positive self-concepts; **the family**, such as having close bonds with at least one family member or an emotionally stable parent; and **the community**, for example receiving support from peers. There are also additional factors associated with resilience like having the capacity to make realistic plans, having good social and communication skills and the capacity to manage strong feelings and impulses.<sup>17</sup>

The segmentation hypothesis suggests that the 'fighters' group are exhibiting resilience in some form. This may not be the capability to 'bounce

back' in the face of acute crisis or chronic stress described by much of the literature<sup>18,19</sup> but rather an ability to rise above their social norms. For example, in some communities in Britain the smoking prevalence among adults is over 60%: the norm is smoking. However, within these communities there remains 40% of adults who do not smoke. Much of this difference can be explained by sociodemographic factors, but some of the difference may be due to resilience factors within individuals, e.g. a strong internal locus of control; or there may be resilient processes at play in the community, e.g. strong social capital; or within the family, e.g. strong parental support. It is beyond the scope of this study to explore in detail these resilience factors, but the number of psycho-social and environmental variables included in the Healthy Foundations survey permit an exploration of some aspects of resilience to adverse healthy behaviours.

### 1.13 Quantification and profiling

The segmentation will identify a number of priority audiences whose behaviours, if left unchanged, are likely to lead to ill-health in the future. These audiences have been identified using epidemiology, social and consumer research and public health targets, and it is recommended that they become the focus of dedicated interventions.

The remainder of this report describes the development of the survey and the results of the segmentation analysis to test the hypothesis.

16. M. Bartley, J. Head and S. Stansfield, Is attachment style a source of resilience against health inequalities at work?, *Social Science and Medicine*, 64, 2007, pp. 765–75.

17. E.E. Werner, Resilience in development, *Current Directions in Psychological Science*, 4, 1995, pp. 81–5.

18. K. Bogenschneider, S. Small and D. Riley, *An ecological, risk-focused approach for addressing youth-at-risk issues*, Wisconsin Youth Futures Technical Report No. 1, University of Madison-Wisconsin, 1990.

19. S. Luthar, *Poverty and children's adjustment*, Sage, 1999.

This work is intended to inform an integrated approach to all areas of DH activity that touch on people's lives. It is intended to be a building block for customer-focused approaches to the development of policy, strategy and implementation. It should **not** be viewed as a segmentation framework solely to inform communications. Furthermore, to achieve the most insightful and accurate picture of people's lives, it is hoped that this segmentation framework will inform cross-government behaviour-change strategies and interventions.

## 1.14 Healthy Foundations – the research programme 2009–2010

The quantitative survey described in this report is one of several studies within the Healthy Foundations research programme. Descriptions of the other studies and tools emerging from the programme are outlined below.

### 1.14.1 Data fusion and the Target Group Index

This quantitative survey is one of the most comprehensive surveys of the health and lifestyles of people living in England. There are, however, many relevant variables which could not be included in the study because of competition for questionnaire space, e.g. how people enjoy themselves, what they buy, what they watch, read and listen to. All of these and many more variables on consumption activities and lifestyles help with targeting interventions and are valuable metrics for programme makers and social marketers.

DH and the NSMC have been looking at ways to augment this data set by fusing it with other existing surveys of consumer behaviour. For example the British Market Research Bureau

operate a panel survey called the Target Group Index (TGI),<sup>20</sup> which comprises a sample of 25,000 respondents in Britain and explores consumer attitudes, activity and purchasing behaviour. It is the market research industry standard and is used by all the major advertising and marketing agencies. Several key questions from TGI have been replicated on the DH survey and these will act as a fusing bridge to join the two data sets.<sup>21</sup> Data fusion techniques, while prevalent and valued in the market research sector, have yet to be established in the academic world of public health research. This study tests out some of the emerging techniques to build much more detailed profiles of the segments.

### 1.14.2 The allocation algorithm – 'the profiler'

The original questionnaire for this study was just over an hour long. Using just 19 questions from the study, it is possible to allocate respondents to one of the five motivation segments to an accuracy of 88%. Using just six questions, it is possible to allocate respondents to one of the five motivation segments to an accuracy of 67%. Either of these small questionnaires can be added to existing national and local health and lifestyle questionnaires to identify the segment grouping for each respondent. More information on the allocation algorithm can be found in section 3.6.

### 1.14.3 Geodemographics

Another way to augment the existing data set and add more detail to the resulting segments is to merge the data set with a geodemographic tool. As postcode data is collected for each individual, this can be the

20. The Target Group Index (see <http://kantarmedia-tgigb.com/>).

21. T. Bock and J. Jephcott, The application and validation of data fusion, *International Journal of Market Research*, 40, 1998. (3)

bridge to profile people by geodemographic variables.

The geodemographic systems under consideration are MOSAIC, Health ACORN (A Classification of Residential Neighbourhoods) and OAC, People and Places and PersoniX. A comparison of the various systems can be found in the Geodemographic Technical briefing produced by the Association of Public Health Observatories.<sup>22</sup>

#### 1.14.4 Qualitative research

Segmentation analysis of the quantitative survey has revealed several interesting segments within the population with complex combinations of attitudes, beliefs and behaviours. Qualitative research with these segments has explored in more detail what the government can do to stimulate and support attempts to become healthier. A report on a large-scale qualitative research project looking in more detail at the segments will be available in 2011 as part of this research report series.

#### 1.14.5 Synthetic estimates

The survey findings, based on a stratified random sample of nearly 5,000 respondents, provide robust prevalence estimates for the general population of England. Furthermore, there are reasonable sample sizes, approximately 500 respondents, by strategic health authority (SHA) (a stratification variable). However, for smaller areas the sample sizes are too small and unstable to be reliable. One method of estimating the response to this questionnaire for smaller areas is to repeat the survey locally. This may be beyond the means of some local

commissioners, so alternative modelling approaches will be explored.

As part of the Health Survey for England study, which had a sample size of 17,000, DH generated local 'synthetic estimates' for key behavioural measures.<sup>23</sup> The possibility of applying the same modelling technique to this data will be explored. A report on the local synthetic estimates will be available in 2011 as part of this research report series.

#### 1.14.6 Longitudinal design

One of the most powerful research techniques in social science is to conduct a longitudinal study of the population. If the respondents interviewed in this survey are each re-interviewed as part of a second survey in a few years' time, their changing attitudes, motivations and behaviours can be examined in the context of their changing lifestyles and circumstances. The survey instrument includes questions requesting permission to re-contact respondents, and 84% of people said they would like to take part again. A follow-up survey is under consideration.

### 1.15 Research governance and user involvement

A number of research and communication experts from DH, COI, the NSMC and academia were involved in overseeing the design and management of the study to ensure that the work met the objectives set by DH. This advisory group met at key stages during the development of the study to review progress. A smaller operational management group comprising DH, NSMC, COI and GfK

22. Association of Public Health Observatories, *Geodemographic Segmentation*, Technical Briefing 5, April 2009. [www.apho.org.uk](http://www.apho.org.uk) (accessed December 2009).

23. S. Scholes, M. Bajekal and K. Pickering, *Synthetic estimation of healthy lifestyles indicators: User guide*, National Centre for Social Research and DH, January 2005.

representatives managed every stage of the study's development and implementation.

A user reference group comprising SHA and PCT representatives was convened to advise on the local application of the study and the production of other analyses and products emerging from the study (see appendix 1).

## 2 Methodology

This chapter gives an overview of the research approach.

The research was conceived to enable further development of the hypothesis that was outlined in section 1 of this report and has been described in the introduction section 1 of this report. The hypothesis outlined a model of health behaviour built around the interaction between motivation, environment and lifestyle, and the study aimed to develop, refine and validate the hypothesis.

### 2.1 Overall strategy

The main vehicle for the study comprised a large-scale quantitative survey. Because of the complexity of the hypothesised dimensions, significant work was required to further conceptualise the dimensions and develop and test the question sets to enable the dimensions to be constructed.

The research therefore comprised a number of complementary strands, which all fed into the design of the main stage survey. The main strands of the work were:

- a review of the current literature that aimed to identify the following:
  - the key motivation areas that may influence health behaviours, and how these are constructed and measured;
  - question sets that are used to measure key environmental themes and constructs; and
  - questions that are used to measure key behaviours;
- two stages of piloting, which aimed to reduce and refine the construction of the motivational dimension;
- cognitive piloting to test questionnaire length and flow; and
- supporting qualitative research among individuals from ethnic minority backgrounds. This strand of the research aimed to investigate whether the lifestyles and the segmentation were appropriate to use among people from ethnic minority backgrounds.

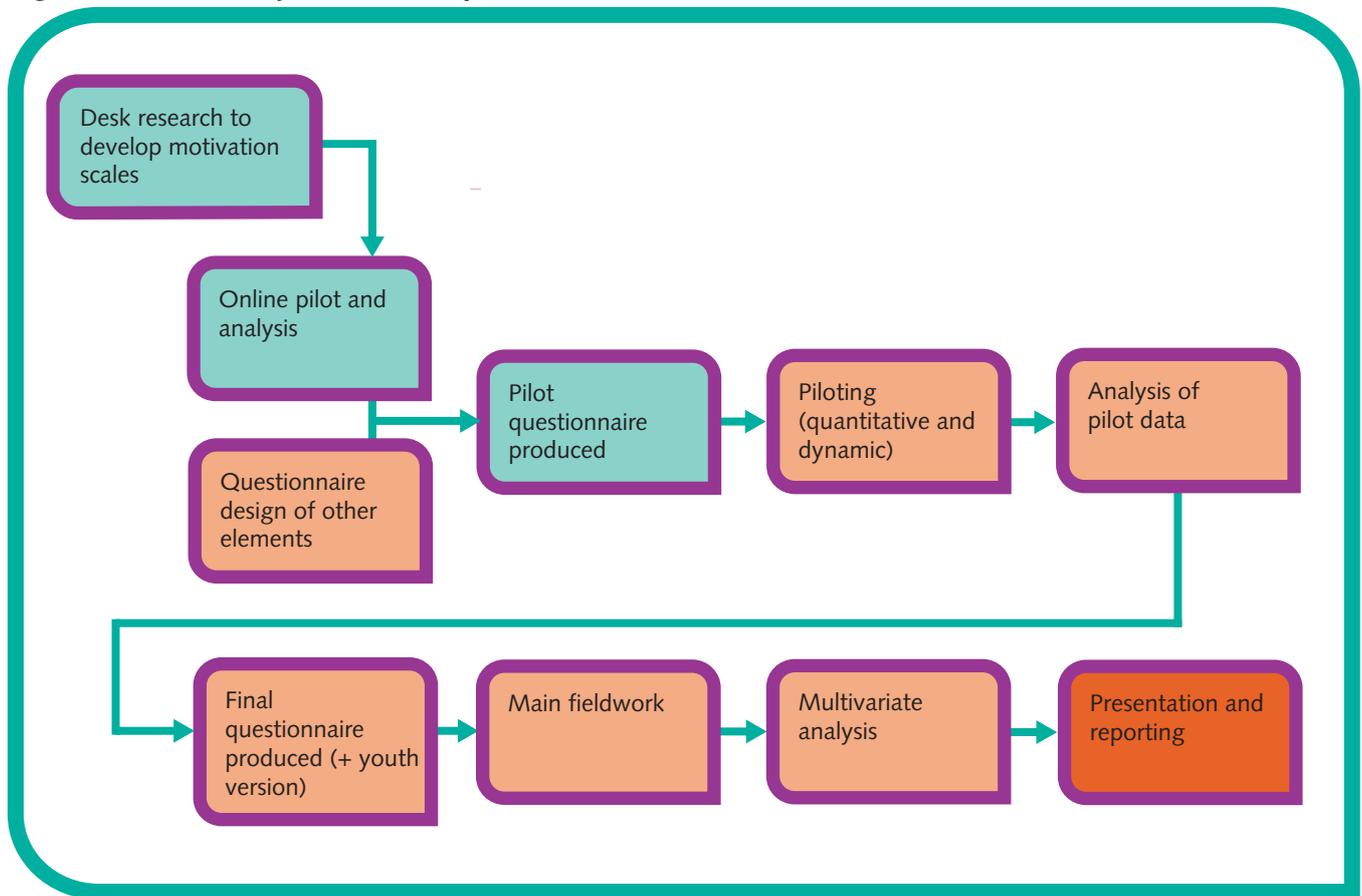
Figure 2.1 shows the overall model for the research and how the different work strands fed into the quantitative survey.

### 2.2 Development of the motivational dimension

#### 2.2.1 Academic literature review

The initial work presented within the hypothesis outlined a unidimensional conceptualisation of 'health motivation'. This characterised people as being positioned along a continuum in terms of how motivated they are to promote and safeguard their health. For presentation purposes, this single continuum was dichotomised to enable classification of people into two broad groups: those who are motivated to look after their health vs. those who are not.

Figure 2.1: Summary of research processes



It was understood that, whereas this conceptualisation of health motivation is appealing in its simplicity, this aspect of the segmentation would require further exploration. Discussion among the Expert Advisory Group recognised that existing research and theory suggested a more intricate relationship between ‘health motivation’ and health behaviour. For instance, within the area of health psychology, the importance of constructs such as **self-esteem**, **locus of control** and **health consciousness** in determining health behaviour has been well documented. It was agreed that, as an initial step, there should be a review of relevant academic and market research literature to help inform development of the ‘motivation dimension’ within the Healthy Foundations project.

The Department of Health (DH), working with Dominic McVey, formerly at the National Social Marketing Centre (NSMC), commissioned a review of the literature looking at a range of constructs which had been identified in the initial scoping phase as having a relationship with behaviour. Some of these constructs, e.g. self-esteem and locus of control, had a considerable body of literature behind them in terms of examining their relationship to health behaviour. Others such as fatalism, having a short-term view of life, and the role of external and internal aspirations were less well researched. The review was conducted by Dr Agnes Nairn (EM-Lyon Business School) and Dr Leigh Morris (Bonamy Finch Marketing Services). They worked closely with Dr Donna Jessop (Lecturer, Department of Health Psychology, University of Sussex), and received further assistance from Dr Emily Buckley

(Senior Lecturer, Department of Psychology, University of Staffordshire). The main sources of information searched were:

- PsycINFO®, a database that contains abstracts from tens of thousands of articles from the general field of psychology extending back to 1970. Articles from all major psychological journals are captured on this database;
- internet search engines (Google and Yahoo, using a basket of terms focusing on psychological predictors of health behaviour); and
- Business Source Premier, a database containing full text of over 7,000 journals in all fields of business and management, including social marketing and consumer research.

Specifically, the review aimed to identify psychological constructs that had been robustly shown to impact on health behaviour, and for which reliable measurement indicators were readily available. Full details of the literature review are available in appendix 2. Seventeen different scales meeting these criteria were presented and are shown in table 2.1, together with their original sources.

It should be noted that some of the scales were copyright or proprietary, and permission was gained for their use in the project.

### 2.2.2 Reducing the number of items

Taken together, the measurement scales for the 17 constructs included a total of 98 question items, including attitude statements and individual questions. The main questionnaire could not accommodate this number of statements, both from the point of view of

**Table 2.1: Motivation scales**

	Scale	Source	Items
1	Anticipated regret	Conner M, Sandberg T, McMillan B and Higgins A (2006) Role of anticipated regret, intentions, and intention stability in adolescent smoking initiation, <i>British Journal of Health Psychology</i> , 11 (1): 85–101	5
2	Aspirations	Grouzet FME, Kasser T, Ahuvia A, Fernández-Dols JM, Kim Y, Lau S, Ryan RM, Saunders S, Schmuck P and Sheldon K (2005) The structure of goal contents across 15 cultures, <i>Journal of Personality and Social Psychology</i> , 89 (5): 800–16	11
3	Attitude to risk	Rohrman B (2004) <i>Risk Attitude Scales: Concepts and Questionnaires</i> , Project report, University of Melbourne	–
4	Attitudes to healthy living	Ajzen I (2006) Constructing a TpB Questionnaire: Conceptual and methodological considerations. Accessed 6 July 2007: <a href="http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf">www.people.umass.edu/aizen/pdf/tpb.measurement.pdf</a>	3
5	Behavioural intentions	Ajzen I (2006) Constructing a TpB Questionnaire: Conceptual and methodological considerations. Accessed 6 July 2007: <a href="http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf">www.people.umass.edu/aizen/pdf/tpb.measurement.pdf</a>	3
6	Fatalism	Powe BD (1995) Fatalism among elderly African Americans. Effects on colorectal cancer screening, <i>Cancer Nursing</i> , 18 (5): 385–92	–
7	Health as a value	Lau RR, Hartman KA and Ware JE (1986) Health as a value: Methodological and theoretical considerations, <i>Health Psychology</i> , 5 (1): 25–43	4

	Scale	Source	Items
8	Health consciousness	Gould SJ (1988) Consumer attitudes to health and health care: a differential perspective, <i>Journal of Consumer Affairs</i> , 22 (1): 96–118	9
9	Health locus of control	Wallston KA, Wallston BS and Devellis RF (1978) Development of the Multidimensional Health Locus of Control (MHLC) scale, <i>Health Education Monographs</i> , 6 (1): 160–70	6
10	Response efficacy	Ajzen I (2006) Constructing a TpB Questionnaire: Conceptual and methodological considerations. Accessed 6 July 2007: <a href="http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf">www.people.umass.edu/aizen/pdf/tpb.measurement.pdf</a>	4
11	Self-determination	Deci EL and Ryan RM (2000) The 'what' and 'why' of goal pursuits: Human needs and the self determination of behavior, <i>Psychological Inquiry</i> , 11 (4): 227–68	9
12	Self-efficacy	Ajzen I (2006) Constructing a TpB Questionnaire: Conceptual and methodological considerations. Accessed 6 July 2007: <a href="http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf">www.people.umass.edu/aizen/pdf/tpb.measurement.pdf</a>	4
13	Self-esteem	Rosenberg M (1965) <i>Society and the Adolescent Self-Image</i> . Princeton, NJ: Princeton University Press	10
14	Self-positivity bias	Raghubir P and Menon G (1998) AIDS and Me, Never the Twain Shall Meet: the effects of information accessibility on judgements of risk and advertising effectiveness, <i>Journal of Consumer Research</i> , 25 (June): 52–63	3
15	Self-regulation	Neal DJ and Carey KB (2005) A follow-up psychometric analysis of the self-regulation questionnaire, <i>Psychology of Addictive Behaviours</i> , 19 (4): 414–22	21
16	Social desirability bias	Paulhus DL (1991) Measurement and control of response bias, in Robinson JP, Shaver PR and Wrightsman LS (eds), <i>Measures of Personality and Social Psychological Attitudes</i> . San Diego, CA: Academic Press, 17–59	20
17	Perceived parental autonomy support	Williams GC, Cox EM, Hedberg V and Deci EL (2000) Extrinsic life goals and health risk behaviors in adolescents, <i>Journal of Applied Social Psychology</i> , 30 (8): 1756–71	6

interview length and respondent fatigue. For some scales abridged versions were available. Using these reduced the number of items to 82, which was still too many. A number of stages of piloting were thus conducted to explore options for reducing the list of statements in a statistically robust way.

### Online pilot

The first stage of piloting took the form of an online pilot study. The pilot study used an internet panel sample, provided by the panel specialist Survey Sampling International. The questionnaire took on average 15 minutes to

complete. The researchers accept that an online survey was unlikely to provide a robust sample of the population, especially given the need to adequately represent hard-to-reach groups such as people in the most deprived areas, the poorest people and people from ethnic minorities. However, given that this element of piloting did not aim to measure the motivations or profile them within the population, it was felt that an online pilot provided the right balance of data quality with speed and economy.

The online pilot included three different samples:

- main sample ( $n = 733$ ). Six age bands (18 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, 65 to 75 ), interlocked with gender and (broadly) nationally representative quotas;
- under-18s ( $n = 145$ ). Four age bands (14, 15, 16, 17), interlocked with gender and (broadly) nationally representative quotas; and
- ethnic minority ( $n = 127$ ). Soft quotas applied to approximate profile of British ethnic minority population.

Eighty-two items were included in the online pilot. In addition to the constructs, a number of basic behavioural and classificatory questions were included to enable thorough analysis of the data.

Analysis of the data was undertaken by Dr Leigh Morris with input from Dr Agnes Nairn and GfK NOP. In determining whether the number of items in construct scales could be meaningfully reduced, three criteria were used:

- degree of interrelationship between items within each scale;
- strength of relationship between 'whole scale' and 'scale subset' items and health behaviour outcomes relating to key areas (smoking; drinking; diet; exercise; drug taking; sexual health risk; general mental health); and
- interrelationship between different scales.

These criteria were explored using a range of multivariate statistical techniques, including factor analysis; principal components analysis; bivariate correlation; scale reliability analysis; multiple enter, hierarchical and stepwise regression. The data was analysed as a whole and then separately for each subgroup (main; under-18s; ethnic minority).

On the basis of results from this analysis process, a list of 51 statements to measure the constructs was identified.

### 2.2.3 Further piloting

A further face-to-face pilot of the questionnaire was completed in January 2008. Face-to-face interviews were conducted to enable us to test how the questionnaire would work using the methods to be used in the main stage, including enabling us to make an accurate assessment of interview length.

In total 406 interviews were completed with a representative sample of adults across England, with the sample selected using random location sampling methods. Although the main-stage survey was sampled using random probability methods, it was felt that a random location sample would be sufficient for this stage of piloting because it provided a good-quality sample more quickly and at a lower cost. The questionnaire included the motivation questions identified from the online pilot, questions on health behaviours and a small number of environment questions and demographics. The average interview length for the face-to-face pilot was 40 minutes.

The main purpose of the pilot was to review the motivation questions and to reduce the number of items comprising the motivation scale. The strategy for this analysis centred on the need to maintain the identified constructs,

**Table 2.2: Motivational constructs included at each stage**

Construct	Number of items included			
	Original scales	Online pilot	Face-to-face pilot	Final questionnaire
Anticipated regret	5	5	1	–
Aspirations	11	–	6	6
Perceptions of risk/risk-taking	–	4	2	3
Attitudes towards a healthy lifestyle	3	2	1	1
Health fatalism	–	–	2	1
Health as a value/response efficacy	4/4	4/2	4	3
Health consciousness	9	9	2	2
Health locus of control	6	6	5	2
Intentions to lead a healthy lifestyle	3	3	2	2
Parental autonomy support scale	6	3	2	2
Self-determination and esteem	9/10	11/5	14	8
Self-efficacy	4	4	2	2
Self-positivity	3	3	3	1
Self-regulation, goal setting and impulse control	21	21	6	5
Social norms	–	–	–	1
Short-termism	–	–	–	1
<b>Total</b>	<b>98</b>	<b>82</b>	<b>52</b>	<b>40</b>

and dimensions within constructs, as much as possible, while reducing the number of items making up each construct. We also aimed to ensure that each construct or dimension was made up of at least two items to enable later analysis.

Following standardisation, items making up each identified construct were forced to a single factor solution, and regression analysis conducted to identify the extent to which each item within the construct explained the variance in the factor. Items which did not add greatly to the explanation of this variance were

excluded from each construct. We aimed to ensure that the items included within each construct explained 80% or more of the variation within that construct.

Further details of the analysis conducted are available on the NSMC/One Stop Shop website.

This analysis process further reduced the number of items making up the motivation dimension from 51 to 40, and these 40 items were included in the main questionnaire (see table 2.2).

## 2.3 Development of the environment dimension

The Healthy Foundations hypothesis suggested that the environment dimension was multi-dimensional and made up of issues such as social, ethnic and religious norms, community characteristics (e.g. social capital) and income. Working with Dominic McVey from the NSMC, further investigation of the literature suggested other environmental factors that might be helpful in understanding and explaining the influence of environment on behaviour.

The factors identified can be classified as follows:

- external environmental factors, such as deprivation, rurality, access to services;
- situational factors, such as presence of influences within the respondent's household, income, poverty; and
- 'softer' environmental factors that may be considered perceptual: parental autonomy, peer pressure, satisfaction with local area, social capital.

The question set was developed following a search of the academic and social research literature. Where possible, 'tried and tested' concepts and question sets were used (e.g. the Indices of Multiple Deprivation (IMD),<sup>24</sup> the Social Capital Question Bank<sup>25</sup>), although these were sometimes modified to fit with questionnaire length and flow.

The items that comprised the environment dimension in the final questionnaire are shown in table 2.3.

**Table 2.3: Topics included in the environment dimension**

Name of construct	Number of questions
Issue with home/local area	2
Distance to services (outdoor space, supermarket)	2
Social norms (whose opinions were felt to be important)	2
Presence of negative influences in household	1
Social capital	6
Parental autonomy	2
Isolation	1
Income, receipt of benefits, perceptions of financial well-being	4
Perceptions of time poverty	1
<b>Total</b>	<b>21</b>

### 2.3.1 Lifestage

The Healthy Foundations hypothesis suggested a taxonomy of lifestage which could be based on the following elements:

- age;
- presence of children;
- presence of partner;
- having significant caring responsibilities (e.g. for children, relatives, etc.); and
- working status (whether retired or not).

The questionnaire included questions to measure all of these elements. Where possible, questions were based on standard question sets, to enable comparisons with other surveys.

24. [www.communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/](http://www.communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/)

25. [www.statistics.gov.uk/about\\_ns/social\\_capital/default.asp](http://www.statistics.gov.uk/about_ns/social_capital/default.asp)

## 2.4 Health behaviours

Key to the success of the segmentation is its ability to differentiate on key health behaviours, and enable identification of willingness and ability to change.

The health behaviours included in the survey were based on the then DH PSA targets,<sup>26</sup> and were constructed to enable identification of individuals who were exhibiting positive health behaviours recommended by DH. These were as follows:

- smoking (not smoking);
- drinking (not drinking more than the recommended weekly number of units);
- drugs (not taking illegal drugs, with taking of Class A drugs identified within this group);
- obesity (whether of ideal BMI);
- nutrition (eating five portions of fruit/vegetables on previous day);
- exercise (undertaking at least five sessions of 30 minutes or more of exercise per week); and
- safe sexual practices (not anticipating having unprotected sexual intercourse with a new partner or someone only just met).<sup>27</sup>

Questions were based on existing question sets, taken from sources such as the Health Survey for England, Scottish Health Education Population Survey and British Crime Survey (questions on drug use). Because of the large number of questions that would be needed to measure all these behaviours using the standard question sets, it was necessary to abridge the question sets. We focused closely

on the key elements of the PSA targets (as listed above), as well as consulting with policy specialists within DH and the NSMC to identify the most important elements of each behaviour.

Because of the sensitivity of the subject matter, questions related to obesity, smoking, alcohol, drug use and sexual behaviour were included in a self-completion section within the questionnaire. This means that respondents were given a laptop and asked to complete these questions by themselves, without interviewer intervention.

As well as answering questions about their current behaviour, respondents were also asked about their future intentions related to each of the behaviours listed above. These questions were designed with guidance from a health psychologist (Dr Emily Buckley from Staffordshire University) and were based around the trans-theoretical model of behaviour change.

## 2.5 Other questionnaire topics

A number of other question topics were included within the questionnaire to add depth of understanding to the analysis. These questions helped us to understand whether there might be any 'mitigating circumstances' that also needed to be taken into account when understanding people's motivations and behaviours. These questions included areas such as recent life events, e.g. having a baby, losing a job, break-up of a relationship, bereavement or whether people have long-term limiting illnesses, etc.

26. PSA targets: [www.dh.gov.uk/prod\\_consum\\_dh/groups/dh\\_digitalassets/@dh/@en/documents/digitalasset/dh\\_085931.pdf](http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_085931.pdf)

27. These questions were only asked of respondents aged 18–54.

As the data was to be fused with TGI data, a number of questions were included to act as 'hook' questions on which to fuse the data (e.g. the amount of TV viewing, internet use).

## 2.6 Further questionnaire testing

A further element of the questionnaire design and testing process was a dynamic pilot, which enabled testing of whether respondents were willing and able to answer the questions within the questionnaire. This dynamic piloting took place as part of the face-to-face pilot (as described in section 2.2.3).

Researchers from DH, the NSMC, the Central Office of Information (COI) and GfK accompanied GfK interviewers to observe interviews as they took place, and researchers asked further follow-up questions at the end of the interview to seek clarification on any questions that did not appear to work as they should. In total 22 interviews were observed. Further changes were made to the questionnaire following this dynamic piloting process, to improve comprehension of some key questions, reduce the extent of repetition among some scales and improve the flow of the questionnaire overall. In addition, it was felt that the definition used for 'exercise' was being interpreted too broadly by some respondents, so this was tightened up in the design of the final questionnaire.

The final questionnaire was agreed by a group comprising representatives from DH, the NSMC and GfK, and is shown in appendix 2.

## 2.7 Sample design

The main stage of the research involved a large-scale survey of people aged 12–74 in England.

The sample was designed to enable detailed analysis among respondents from the most deprived areas, as these areas were more likely to suffer from health inequalities. The sample design was such that:

- 60% of the sample (called the core sample) was drawn from a nationally representative (England only) sampling frame, after stratification by IMD, strategic health authority (SHA) and population density. Some 255 sampling points were drawn as part of the core sample.
- 40% of the sample (called the deprived boost sample) was drawn from the 10% most deprived areas in England, following stratification by strategic health authority (SHA) and population density. Some 166 sampling points were drawn as part of the deprived boost sample.

Sampling points took the form of census super-output areas (SOAs), which were drawn with probability proportionate to the presence of 12–74-year-olds, following stratification as shown above. Within each sampling point, a random start point was selected, and every *n*th address thereafter was drawn to yield a total of 25–33 addresses per sampling point.<sup>28</sup> This means that every 17th–25th address was selected, depending on the nature of the sampling point. A total of 11,612 addresses were issued.

28. More addresses were issued in London or in deprived areas. The numbers of addresses issued per sampling point were: core sample – London 29, out of London 25; deprived boost sample – London 33, out of London 29.

A doorstep screening exercise was completed at each address to establish whether there were residents within the household who fell into the eligible age categories for interview. If an address comprised multiple dwellings or multiple households, a random selection of dwelling and/or household was made using the Kish grid.<sup>29</sup>

Within each eligible household, if only one person was eligible an interview was attempted with that person. If more than one person was eligible, a person was selected at random using Kish.

In an attempt to maximise response, interviewers were told to make a minimum of six calls over a three-week period, at varying times, at each address they had been given.

In addition, we wished to boost the number of interviews conducted with ethnic minorities to enable further detailed analysis. The boost sample was selected using focused enumeration: only addresses from the core sample were enumerated to reduce the likelihood of over-representing ethnic minorities from deprived areas in the final sample. Respondents who had completed a full interview were asked whether they knew the ethnic identity of the household at the next address listed on Postcode Address File (PAF) (usually next door). If the respondent mentioned that somebody in that household fell within a specific group (see Showcard MA, appendix 2.2) or stated that they did not know the ethnic background of the people living at the address, then the interviewer would attempt an interview at that address.

## 2.8 Fieldwork

All fieldwork was conducted by fully trained interviewers from GfK NOP, who worked within the standards of the Interviewer Quality Control Scheme. Just over 5% of all fieldwork days were accompanied by a supervisor or experienced interviewer who monitored and fed back on the interviewer's work. In addition, 5% of all achieved interviews were back-checked as part of GfK NOP's quality control procedures.

All interviewers working on the project attended a full day's face-to-face briefing before starting work. The briefings were designed to be interactive and give interviewers the opportunity to practice contact procedures and interviews, and to ask questions and receive feedback.

Fieldwork was conducted between March and June 2008. A total of 5,380 people were interviewed, representing a net response rate of 55%. A full breakdown of the response rate calculation can be found in section 6 of the appendices.

Fieldwork was designed to be as inclusive as possible, and special consideration was given to the sensitivity of some of the questions. In order to give all respondents the opportunity to answer sensitive questions honestly and without embarrassment, all potentially sensitive questions were placed within one section and a number of different interviewing techniques were used to administer these questions. For example:

29. L. Kish, A procedure for objective respondent selection within the household, *Journal of the American Statistical Association*, 44 (247), 1949, pp. 380–7.

- Computer-assisted self-interviewing (CASI) was offered to all respondents. This allowed respondents to answer the questions in private by reading and responding to the questions on the computer-assisted personal interviewing (CAPI) machine: 77% of all respondents completed the self-completion section.
- Audio self-completion was also offered to all respondents. The key questions were identified and respondents were able to listen to these key questions via headphones and code answers based on pressing a corresponding number on the CAPI machine. The audio self-completion was offered in English, Gujarati, Sylheti and Punjabi. In total 33 respondents (1% of all respondents) completed the audio self-completion. The key questions included in the audio self-completion are shown in appendix 2.1.
- The sample was weighted to rebalance the proportion of respondents from the most deprived areas in the total sample: while 50% of the total sample came from the most deprived areas in England, their responses were downweighted to comprise 10% of the total sample.
- Further corrective weights were applied for ethnicity, age within gender, working status and presence of children within household, to correct for differences in response rate among certain groups.

The overall effective sample size was 2108, giving a weighting efficiency of 39% (see appendix 4 for full details). While this may seem somewhat low, it should be borne in mind that the sample was designed to over-represent respondents from the most deprived areas, and given the size of the skew, a weighting efficiency of this magnitude is not unexpected.

Design effects have been calculated for key questions, and full details are included in appendix 5. The design effects take into account the impact of weighting, clustering and probabilities of selection. The total design effect for the survey is 3.70.

The technical appendices 3, 4 and 5 contain the full technical details of the survey, including a comprehensive breakdown of the response and the weighting strategy.

While a variety of interviewing techniques were offered to respondents, 26% of respondents requested that the interviewers administered the self-completion section of the questionnaire and 1% refused to complete this section.

## 2.9 Data analysis and weighting

The survey data were weighted to compensate for the various design effects introduced by the sample design.

- Pre-weights were applied to correct for unequal selection probabilities if an address contained multiple dwellings or multiple households, and if a household contained multiple eligible respondents.

# 3 Motivation Dimension

This chapter gives an overview of how the motivation segmentation was developed and refined, and describes the resulting motivation segments.

## 3.1 Hypothesis

The hypothesis outlined in the introduction (section 1 of this report) suggested that in addition to people's lifestages and environment, people's motivations may also play a role in health behaviours. There are many examples of people who live in what could be considered to be poor environments but have positive health behaviours.

Conversely, there are many people living in good environments who have negative health behaviours. It was hypothesised that health behaviours are affected by motivations.

The hypothesis report identified that there were a number of key attitudinal drivers for specific behaviours, but there was relatively little analysis of attitudinal drivers that cut across several behaviours.

A number of attitudinal constructs were identified as possible drivers of multiple behaviours. They were:

- the extent to which an individual holds a long-term/short-term life view;
- the extent to which individuals are complacent about the relationship between at-risk behaviours and their health; and

- the extent of an individual's confidence in their own ability to make positive changes to their health and well-being.

## 3.2 Development of the dimension

The original hypothesis outlined a unidimensional conceptualisation of 'health motivation' that positioned people along a continuum in terms of how motivated they are to promote and safeguard their health. It was understood that, whereas this conceptualisation of health motivation is appealing in its simplicity, this aspect of the segmentation would require further exploration and development.

The full process for developing the motivation dimension is described in section 2.2 of this report, but is summarised below. The dimension was developed following a thorough review of existing literature looking at a range of constructs which had been identified in the hypothesis as having a relationship with behaviour, and for which reliable indicators were readily available. Seventeen scales, comprising 98 question items, were identified.

Because the questionnaire could not accommodate this number of questions, two stages of work were completed to reduce the number of questionnaire items:

- An online pilot interviewing 733 adults in England, 145 14–17-year-olds and 127 people from ethnic minorities. The online pilot sample was provided by the panel specialist Survey Sampling International, and the questionnaire took around 15 minutes

to complete. Eighty-two question items were included in the online pilot, as well as basic behavioural and classification questions. Following analysis of the online pilot data, the number of question items was reduced to 51.

- A face-to-face pilot of 400 adults in England, with the sample drawn using random location sampling methods. Following analysis of the face-to-face pilot data, the number of motivation question items was further reduced to 36 items.

Table 2.2 shows the full list of constructs included at each stage of piloting.

### 3.3 Validation and testing of the constructs

The literature review identified a number of well-known and validated motivational constructs that might play a role in influencing health behaviours. Although constraints of interview length meant that the way in which some of the constructs were measured needed to be simplified, it was still important to test and validate these constructs within the Healthy Foundations data set.

The first step was to check whether individual questions making up the constructs still fell naturally into their original constructs. Prior to this analysis the constructs had only ever been tested and validated in isolation or in small groups, so this was the first time that so many had been included in one questionnaire together. It was therefore important to understand how the constructs interact with each other, and to assess whether other 'new' constructs might be more appropriate.

As an initial exploratory stage, all of the motivation question items were placed into a

factor analysis to enable us to understand whether there were any latent groupings that best described them. The questions listed below loaded very weakly onto a number of factors, and were therefore removed from further factor analysis.

- I generally focus on the here and now rather than worry about the future (risk-taking).
- I have trouble following through with things once I've made up my mind to do something (impulse control).
- How likely do you think it is that you will get seriously ill at some point over the next few years (self-positivity)?

The analysis identified an optimal 12-factor solution based on the eigenvalues observed. While many of the original constructs were still identifiable within this solution, some were split and others were combined. Table 3.1 shows the 12-factor solution. One statement, 'It would be enjoyable to lead a healthy lifestyle', loaded into the same factor as internally focused aspirations, and it was recommended to move this to the first factor to sit with other perceptions of a healthy lifestyle.

Given that the eigenvalue criterion for factor choice (i.e. that factors for inclusion should have an eigenvalue of  $>1$ ) is only a crude rule of thumb, it was felt that further solutions should be explored, enabling the original constructs from the literature review to be more easily identified. The main reason for this decision centred on the fact that these constructs are already well known and widely used, and using them as the basis of the segmentation would make the resulting motivation segmentation easier to understand and communicate.

**Table 3.1: Initial factor analysis – 12-factor solution**

No.	Question	Original construct	Factor loading
1	For you, would it be: Easy to lead a healthy lifestyle	Self-efficacy	.79
	To what extent would you agree or disagree with: I would describe my current lifestyle as healthy	Health status	.70
	How much control do you believe you have over whether or not you lead a healthy lifestyle over the following year? Have control over healthy lifestyle	Self-efficacy	.67
	To what extent would you agree or disagree with: I intend to lead a healthy lifestyle over the next 12 months	Intention to lead a healthy lifestyle	.56
2	Please tell me how much you agree or disagree with: I feel good about myself	Self-esteem	.75
	Please tell me how much you agree or disagree with: I am at least equal to other people	Self-esteem	.67
	Please tell me how much you agree or disagree with: Most days I feel a sense of achievement from what I do	Self-determination	.62
	Please tell me how much you agree or disagree with: I generally feel free to express ideas and opinions	Self-determination	.59
	And how much do you agree or disagree with: I am able to achieve things I set out to do	Goal setting	.46
3	Please could you tell me how much you agree or disagree with: I am usually aware of my health	Health consciousness	.82
	Please could you tell me how much you agree or disagree with: I'm very involved in my health	Health consciousness	.80
4	Please could you tell me how much you agree or disagree with: If you don't have your health you don't have anything	Health as a value	.89
	Please could you tell me how much you agree or disagree with: There is nothing more important than good health	Health as a value	.87
5	Please tell me how much you agree or disagree with: I believe you need to take risks to lead a full life	Risk-taking	.86
	Please tell me how much you agree or disagree with: I get a lot of pleasure from taking risks	Risk-taking	.85
6	And how much do you agree or disagree with: I learn from my mistakes	Impulse control	.68
	And how much do you agree or disagree with: If I make a resolution to change something, I pay a lot of attention to achieving it	Goal setting	.59
	And how much do you agree or disagree with: As soon as I see a problem I start looking for possible solutions	Goal setting	.59
7	Please could you tell me how much you agree or disagree with: The main thing which affects my health is what I personally do	Health locus of control	.85
	Please could you tell me how much you agree or disagree with: I am in control of my own health	Health locus of control	.69

No.	Question	Original construct	Factor loading
8	Could you tell me how important each one is to you personally: To have money, wealth and possessions	Aspirations	.80
	Could you tell me how important each one is to you personally: To have an image that others find appealing	Aspirations	.76
9	Could you tell me how important each one is to you personally: To feel that there are people who really love me and whom I love	Aspirations	.78
	Could you tell me how important each one is to you personally: To be healthy	Aspirations	.04
10	Could you tell me how important each one is to you personally: To help people in the world in greater need	Aspirations	.63
	For you, would leading a healthy lifestyle be: Enjoyable to lead a healthy lifestyle*	Attitudes towards a healthy lifestyle	.57
	Could you tell me how important each one is to you personally: To learn new things	Aspirations	.45
11	Please could you tell me how much you agree or disagree with: If a person is meant to get ill, it doesn't matter what a doctor tells them to do, they will get ill anyway	Fatalism (about health)	.75
	Please could you tell me how much you agree or disagree with: Following a healthy lifestyle over the coming year is an effective way to reduce my chances of becoming ill	Response efficacy	-.52
	Please tell me how much you agree or disagree with: I tend to believe in Fate	Fatalism (belief in Fate)	.46
12	And still thinking about your own lifestyle at the moment, which of the statements on this card best describes your view? If I don't lead a healthy lifestyle, my health could be at risk	Perceptions of risk	.94

\*Enjoyable to lead a healthy lifestyle – recommended to move to Factor 1

A 20-factor solution was identified for which most questions fell into their original constructs: the only exception was the question on aspirations, which formed a 3-grouping solution. A small number of questions did not fall into their existing constructs, and these are shaded in table 3.2.

**Table 3.2: Factor analysis – 20-factor solution**

No.	Question	Original construct	Factor loading
1	Please tell me how much you agree or disagree with: I am at least equal to other people	Self-esteem	.76
	Please tell me how much you agree or disagree with: I feel good about myself	Self-esteem	.75
	Please tell me how much you agree or disagree with: Most days I feel a sense of achievement from what I do	Self-determination	.61
2	Please could you tell me how much you agree or disagree with: I am usually aware of my health	Health consciousness	.83
	Please could you tell me how much you agree or disagree with: I'm very involved in my health	Health consciousness	.81
3	Please could you tell me how much you agree or disagree with: If you don't have your health you don't have anything	Health as a value	.89
	Please could you tell me how much you agree or disagree with: There is nothing more important than good health	Health as a value	.87
4	And how much do you agree or disagree with: As soon as I see a problem I start looking for possible solutions	Goal setting	.70
	And how much do you agree or disagree with: I am able to achieve things I set out to do	Goal setting	.62
	And how much do you agree or disagree with: If I make a resolution to change something, I pay a lot of attention to achieving it	Goal setting	.52
	And how much do you agree or disagree with: I have trouble following through with things once I've made my mind up to do something	Impulse control	-.47
5	Please tell me how much you agree or disagree with: I believe you need to take risks to lead a full life	Risk-taking	.88
	Please tell me how much you agree or disagree with: I get a lot of pleasure from taking risks	Risk-taking	.86
6	How much control do you believe you have over whether or not you lead a healthy lifestyle over the following year? Have control over healthy lifestyle	Self-efficacy	.86
	For you, would it be: Easy to lead a healthy lifestyle	Self-efficacy	.74
7	To what extent would you agree or disagree with: I intend to lead a healthy lifestyle over the next 12 months	Intention to lead a healthy lifestyle	.78
	To what extent would you agree or disagree with: I would describe my current lifestyle as healthy	Health status	.73
8	Please could you tell me how much you agree or disagree with: The main thing which affects my health is what I personally do	Health locus of control	.83
	Please could you tell me how much you agree or disagree with: I am in control of my own health	Health locus of control	.71

No.	Question	Original construct	Factor loading
9	Could you tell me how important each one is to you personally: To have money, wealth and possessions	Aspirations	.82
	Could you tell me how important each one is to you personally: To have an image that others find appealing	Aspirations	.80
10	Could you tell me how important each one is to you personally: To help people in the world in greater need	Aspirations	.77
	Could you tell me how important each one is to you personally: To learn new things	Aspirations	.61
11	Could you tell me how important each one is to you personally: To feel that there are people who really love me and whom I love	Aspirations	.78
	Could you tell me how important each one is to you personally: To be healthy	Aspirations	.63
12	Please could you tell me how much you agree or disagree with: Following a healthy lifestyle over the coming year is an effective way to reduce my chances of becoming ill	Response efficacy	.84
13	Please tell me how much you agree or disagree with: I tend to believe in Fate	Fatalism (belief in fate)	.91
14	Please tell me how much you agree or disagree with: I generally focus on the here and now rather than worry about the future	Risk-taking	.95
15	And how much do you agree or disagree with: I learn from my mistakes	Impulse control	.92
16	For you, would leading a healthy lifestyle be: Enjoyable to lead a healthy life	Attitudes towards a healthy lifestyle	.88
17	And still thinking about your own lifestyle at the moment, which of the statements on this card best describes your view? If I don't lead a healthy lifestyle, my health could be at risk... In the next few years	Self-positivity replacement	-.86
18	Compared with other people of your age, how likely do you think it is that you will get seriously ill at some point over the next few years	Perceptions of risk	.96
19	Please could you tell me how much you agree or disagree with: If a person is meant to get ill, it doesn't matter what a doctor tells them to do, they will get ill anyway	Fatalism (fatalistic about health)	.95
20	Please tell me how much you agree or disagree with: I generally feel free to express my ideas and opinions	Self-determination	.87

Following further discussion, the decision was taken to remove the questions that did not load with their expected factors from the list of inputs to the segmentation, as well as removing the following:

- I would describe my current lifestyle as healthy (health status): this was felt to be more of a behavioural than a motivational question.
- The following elements of aspirations: these were removed because they did not appear to be strongly predictive of health behaviour:

- to help people in greater need
- to learn new things
- to feel I am loved and to love
- to be healthy
- I tend to believe in fate (fatalism): this was not strongly predictive of health behaviour.

While these statements were removed from the segmentation inputs, they were still used as

profiling variables for the segmentation clusters.

### 3.3.1 Constructs for segmentation

The final questions and the constructs into which they fall into are shown in table 3.3, and these formed the inputs to the segmentation. Please note, however, that the questions that did not form inputs to the segmentation were still used to profile the segmentation solutions.

**Table 3.3: Final questions and constructs input into the motivation segmentation**

Question	Original construct
Please tell me how much you agree or disagree with: I am at least equal to other people	Self-esteem
Please tell me how much you agree or disagree with: I feel good about myself	Self-esteem
Please could you tell me how much you agree or disagree with: I am usually aware of my health	Health consciousness
Please could you tell me how much you agree or disagree with: I'm very involved in my health	Health consciousness
Please could you tell me how much you agree or disagree with: If you don't have your health you don't have anything	Health as a value
Please could you tell me how much you agree or disagree with: There is nothing more important than good health	Health as a value
And how much do you agree or disagree with: As soon as I see a problem I start looking for possible solutions	Goal setting
And how much do you agree or disagree with: I am able to achieve things I set out to do	Goal setting
And how much do you agree or disagree with: If I make a resolution to change something, I pay a lot of attention to achieving it	Goal setting
Please tell me how much you agree or disagree with: I believe you need to take risks to lead a full life	Risk-taking
Please tell me how much you agree or disagree with: I get a lot of pleasure from taking risks	Risk-taking
How much control do you believe you have over whether or not you lead a healthy lifestyle over the following year? Have control over healthy lifestyle	Self-efficacy
For you, would it be: Easy to lead a healthy lifestyle	Self-efficacy
To what extent would you agree or disagree with: I intend to lead a healthy lifestyle over the next 12 months	Intention to lead a healthy lifestyle
Please could you tell me how much you agree or disagree with: The main thing which affects my health is what I personally do	Health locus of control

Question	Original construct
Please could you tell me how much you agree or disagree with: I am in control of my own health	Health locus of control
Could you tell me how important each one is to you personally: To have money, wealth and possessions	Externally focused aspirations
Could you tell me how important each one is to you personally: To have an image that others find appealing	
Please could you tell me how much you agree or disagree with: Following a healthy lifestyle over the coming year is an effective way to reduce my chances of becoming ill	Response efficacy
Please tell me how much you agree or disagree with: I generally focus on the here and now rather than worry about the future	Short-termism
And how much do you agree or disagree with: I learn from my mistakes	Impulse control
For you, would leading a healthy lifestyle be: Enjoyable to lead a healthy life	Attitudes towards a healthy lifestyle
And still thinking about your own lifestyle at the moment, which of the statements on this card best describes your view? If I don't lead a healthy lifestyle, my health could be at risk ... in the next few years	Self-positivity
Compared with other people of your age, how likely do you think it is that you will get seriously ill at some point over the next few years?	Perceptions of risk
Please could you tell me how much you agree or disagree with: If a person is meant to get ill, it doesn't matter what a doctor tells them to do, they will get ill anyway	Health fatalism

Table 3.4 shows how the input constructs differentiate on the key behaviours. The numbers in the chart show indexed scores: if there is no differentiation based on the construct, an indexed score of 100 is shown. If a high score on the construct is positively correlated with a behaviour, an indexed score above 100 is given, and if the construct is negatively correlated with that behaviour, an indexed score of less than 100 is shown. Statistically significant differences (at 95% level) are indicated on the chart: the scores indicated with \* show statistically significant (95% level) over-indexing in a particular behaviour compared with the mean, and those with ^ show where there is under-indexing.

As is clear from the large number of \* and ^ marks on the chart, most of the constructs were highly correlated with behaviour. For example, respondents who showed higher levels of

self-esteem were more likely than average to have eaten five or more portions of fruit/vegetables on the previous day and to have taken five or more sessions of 30 minutes or more exercise per week and were less likely to smoke or to have a high GHQ score (which may indicate possible future mental health problems).

It is notable that alcohol use was the least likely to show differentiation by the key constructs: it was strongly correlated only with health consciousness, short-termism and perceptions of risk. However, most constructs were significantly correlated with at least three behaviours, and therefore all were felt to be worthwhile inputs into the motivation segmentation.

**Table 3.4: Motivation dimension input constructs: differentiation on key behaviours**

Self-esteem	106 *	108 *	111 *	96	118 *	105	99
Health consciousness	129 *	103	140 *	174 *	99	97	106 *
Health as a value	96 ^	99	94 ^	141 *	121 *	84 ^	101
Goal setting	123 *	106 *	127 *	111 *	107 *	107 *	103
Risk-taking	106 *	110 *	88 ^	58 ^	100	121 *	101
Self-efficacy	118 *	111 *	143 *	172 *	118 *	128 *	100
Intention to lead a healthy lifestyle	149 *	112 *	192 *	118 *	89 ^	114 *	102
Health locus of control	93 ^	115 *	90 ^	96 ^	91 ^	113 *	97
Aspirations (external focus)	87 ^	96 ^	109 *	96 ^	100	100	99
Response efficacy	119 *	103	116 *	70 ^	100	102	97
Short-termism	92 ^	108 *	84 ^	96 ^	117 *	87 ^	91 ^
Impulse control	102	99	102	316 *	109 *	94 ^	104
Attitudes towards a healthy lifestyle	127 *	110 *	137	104	99	117 *	101
Self-positivity	88 ^	86 ^	81 ^	80 ^	100	82 ^	100
Perceptions of risk	120 *	98	121 *	103	88 ^	90 ^	85 ^
Health fatalism	88 ^	94 ^	95 ^	136 *	113 *	97	102

The scores indicated with \* show statistically significant (95% level) over-indexing in a particular behaviour compared with the mean, and those with ^ show where there is under-indexing.

### 3.4 Segmentation process

Once the inputs to the segmentation had been agreed, it was necessary to take a number of other decisions on the processes to be followed. These key decisions and stages are described below.

#### 3.4.1 Weighted vs. unweighted data

Although the study aimed to produce a segmentation that was broadly representative of the population in England aged 16–74, the inclusion of substantial boost samples to enable separate analysis of key subgroups (ethnic minorities and people in deprived areas<sup>30</sup>) meant that a decision needed to be taken on

30. See section 2.7 for a full description of the boosts sample.

whether the segmentation should be run on weighted or unweighted data.

If the segmentation was run on unweighted data, the opinions of the boosted groups would be over-represented in driving the segmentation. While there are strong arguments for doing this, e.g. these groups may be more at risk of negative health outcomes, the strategic aims of the segmentation led to a decision to conduct the analysis based on weighted rather than non-weighted data.

### 3.4.2 Discussion of segmentation approaches

Ensemble is a method of clustering respondents based on their membership of predefined or pre-existing clusters.<sup>31</sup> Ensemble does not cluster directly from input variables or dimensions, so is not analogous to other conventional methods such as k-means. The premise behind it is that there are countless different methods, algorithms, distance metrics, not to mention combinations of variables and transformations, that may be used in the construction of a segmentation, but the difficulty is, invariably, in finding solutions which are stable and robust and therefore genuinely reflect the segments of respondents in the data set. The authors of Ensemble analysis suggest the inputting of many different cluster solutions, reflecting different inputs, transformations, algorithms, etc. The software then analyses the cluster membership and forms clusters on the basis of the most frequently occurring cluster patterns in the input segments. The result is a set of segments based on a 'consensus' solution.

The complexity of the project meant that it was necessary to run and consider a number of potential segmentation solutions derived using different segmentation methods: each had a number of merits and drawbacks, and each had different outputs. To provide a variety of outputs and solutions, they were run by both GfK NOP and Bonamy Finch using different software. Given the uncertainty around which solutions were more sound, statistically speaking, it was felt appropriate to use this Ensemble approach as it would tease out the most robust solution by examining which respondents were more frequently being segmented together across the different models, arriving at a consensus solution.

### 3.4.3 Initial segment solutions entered into the Ensemble segmentation

Altogether 20 solutions were produced, and these were reviewed by the working group to determine which should be used as inputs to the Ensemble approach. Solutions which it felt did not add anything to overall understanding of motivations, which failed the test of face validity, or which did not differentiate well on health behaviour were excluded from the following stage. The remaining solutions were then placed as inputs to the Ensemble software and the resultant segments were tested for statistical efficiency and interpretability. The four inputs are shown in appendix 6 and were as follows:

- K-means model based on uncentred respondents;
- K-means model based on centred respondents;

31. B. Orme and R. Johnson, *Improving K-Means Cluster Analysis: Ensemble Analysis Instead of Highest Reproducibility Replicates*, Sawtooth Software Research Paper Series, Sequim, WA, 2008.

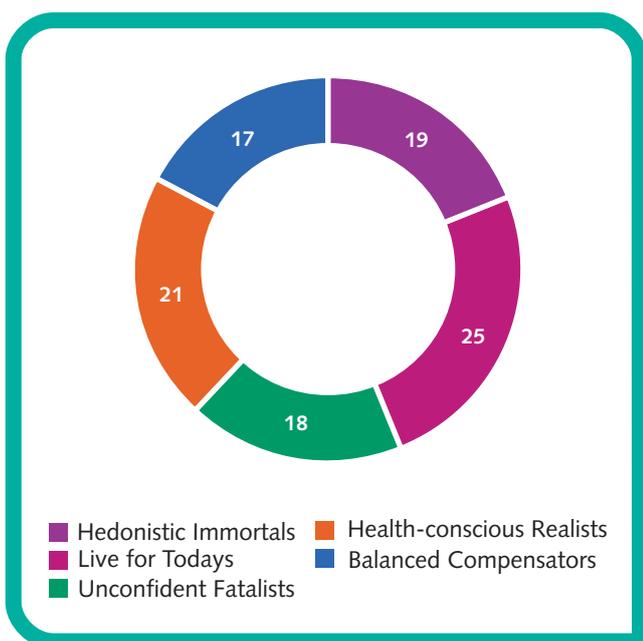
- K-means model using different software, based on centred respondents; and
- K-means model run using basic SPSS software, based on centred respondents.

These inputs generated a number of solutions that were examined in detail by the project team. After careful consideration by the expert advisory group, the five-segment solution was chosen as the optimal solution because it was felt to be the most intuitive and actionable, while differentiating very well on health behaviours. The full segment profile is appended, but the five resulting segments are summarised below.

### 3.5 Final motivation segmentation

The segmentation solution comprised five segments each of similar size, ranging from 17% of the total sample who were Balanced Compensators to 25% who were in the Live for Today segment (see figure 3.1).

**Figure 3.1: Proportion of respondents in each motivation segment**



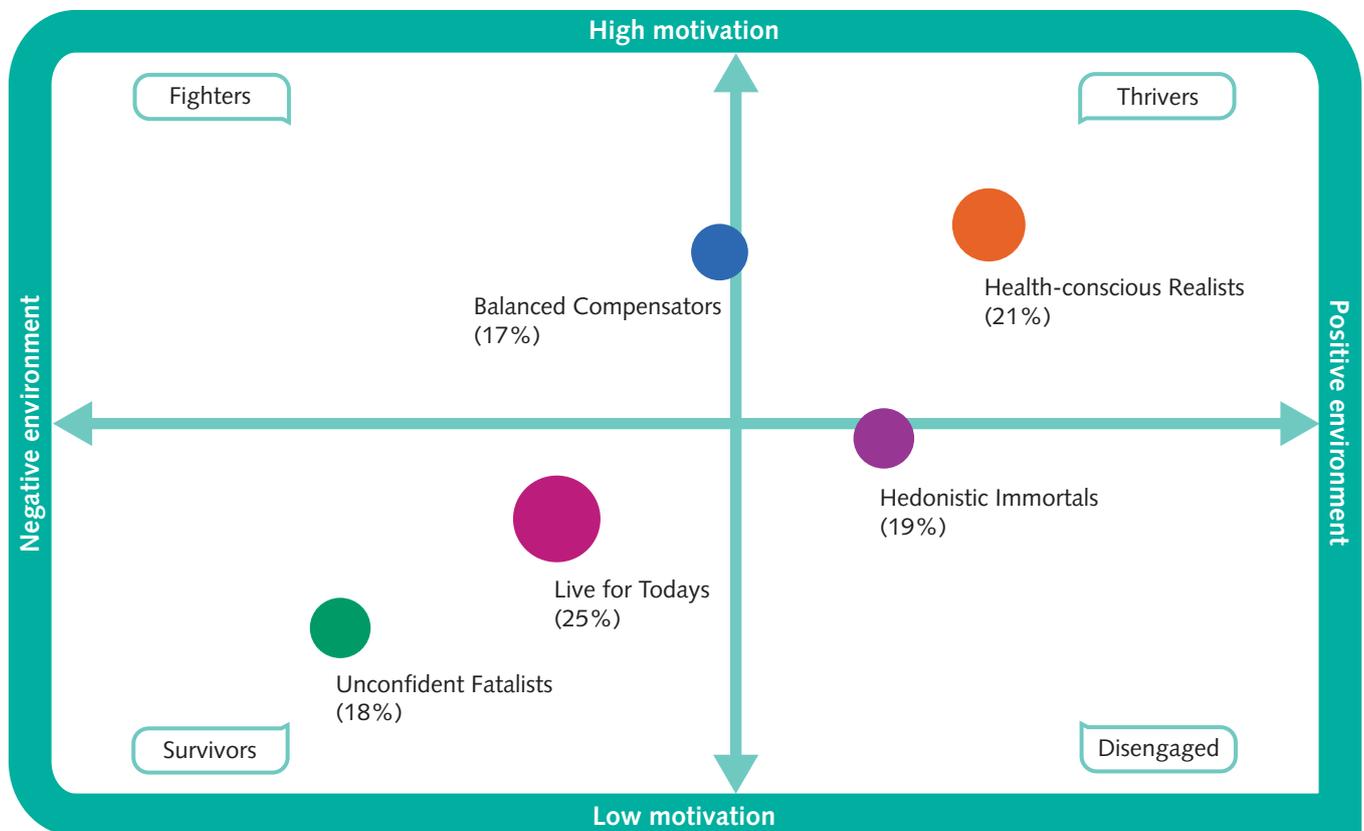
Base: All respondents (unwtd 4,928/wtd 4,928/effective sample size (ess) 2,496)

For illustration, the five segments are shown plotted against the motivation and environment 'dimensions' suggested in the original hypothesis (see figure 3.2). It should be noted that the dimensions and positions on the dimensions are not to scale, and the diagram aims to give a qualitative indication of where the segments would sit against these dimensions.

It is notable that none of the segments sit centrally in the fighting or disengaged quadrants. Although the chart appears to show a linear relationship between motivation and environment (i.e. the segments are approximately plotted on a diagonal line from the bottom left of the chart to the top right), it should be noted that the segments have not been subdivided by environment. Their position on the 'environment' axis indicates their 'average' environment, but each includes a range of environments that masks the impact of environment on motivation. The next stage of the segmentation process was to break the segments down further by environment, and this is described in more detail in section 4 of this report.

The Unconfident Fatalists and Live for Today segments sit in the 'survivors' quadrant in the chart, as they have fairly low levels of motivation towards their health and tend to come from the most deprived environments (as defined by the Indices of Multiple Deprivation (IMD)). The Health-conscious Realists sit in the 'thrivers' quadrant, having high levels of health motivation and tending to come from more positive environments. The Balanced Compensators and Hedonistic Immortals segments sit on the borders of the 'thrivers' quadrant, with the Hedonistic Immortals tending to sit within the 'disengaged' quadrant

Figure 3.2: Motivation segments plotted against motivation and environment dimensions



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

and the Balanced Compensators tending to sit within the 'fighters' quadrant.

The demographic and motivation profiles of each segment are described in sections 3.5.1 to 3.6 of this report, and section 3.7 compares the health behaviours of the key segments. The detailed profiles of the segments are shown in appendix 7.

The description of each segment starts with a brief illustrative pen portrait and diagram, and is then followed by a description of the segment based on the segmentation inputs and their demography. In reading these descriptions and looking at the associated diagrams it is worth noting that, just because a segment is described as or illustrated as 'tending to be older' or 'tending to come from more deprived areas', this does not mean that

all of the members of that segment are older or from more deprived areas. Because the segments are based on motivations rather than demographics, each segment will contain a spread of different demographic groups, but the commentary below describes each in terms of deviations from the mean in their demographic profile.

The health behaviours of each of the segments are described in detail in section 3.7 of this report.

### 3.5.1 Unconfident Fatalists

#### Unconfident Fatalists

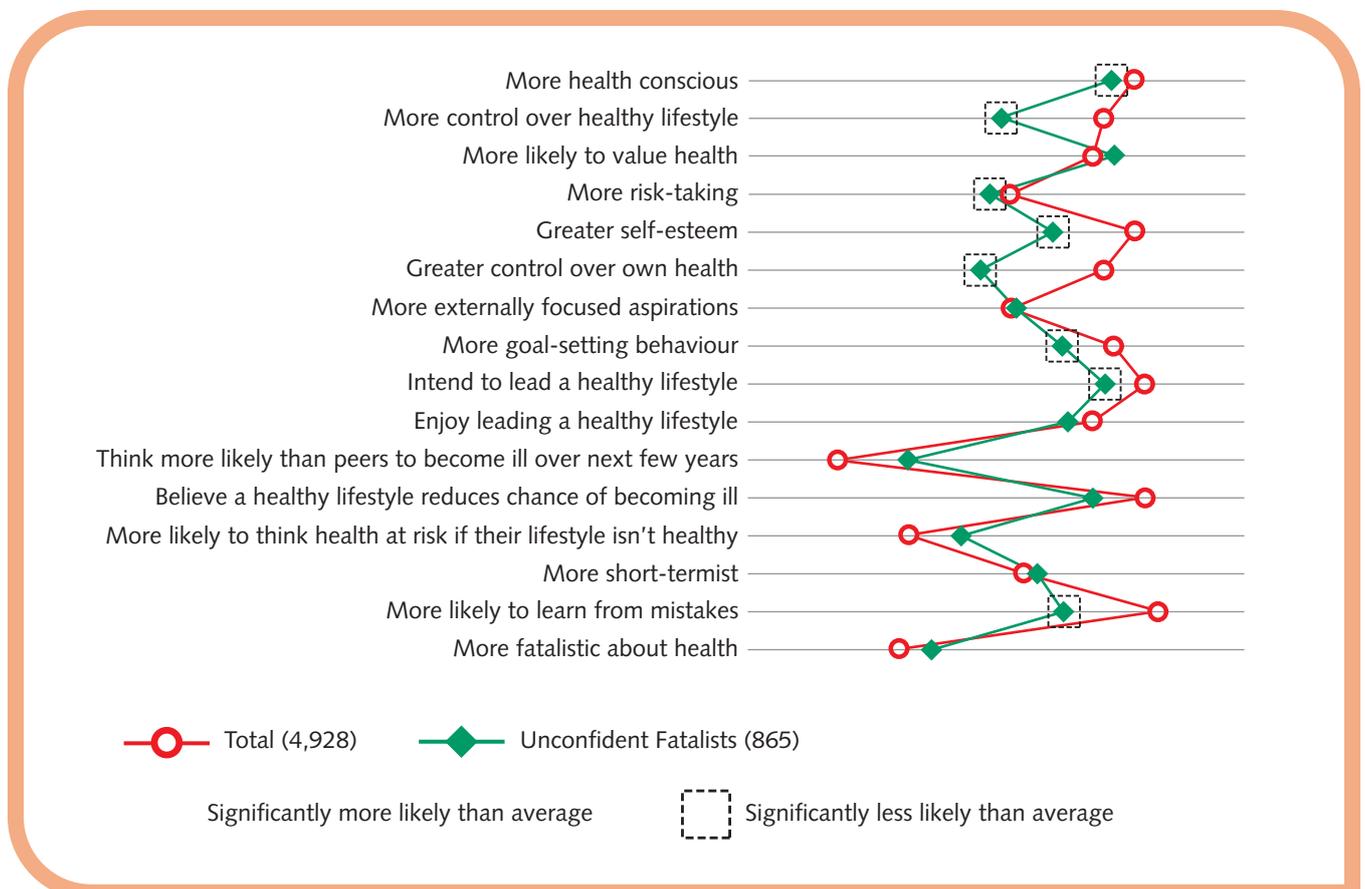
Overall, they feel fairly negative about things, and don't feel good about themselves. A significant proportion feel depressed. They feel that a healthy lifestyle would not be easy or under their control. Generally, they don't feel in control of their health anyway. They are quite fatalistic about health and think that they are more likely than other people of the same age to become ill. Their current lifestyles aren't that healthy, and their health isn't currently as good as it could be. They know that their health is bad and that they should do something about it, but feel too demotivated to act.

Unconfident Fatalists make up 18% of the total adult sample. This equates to around 6.8 million adults in England who may be classified as Unconfident Fatalists.

#### Health motivations

Figure 3.3 shows the health motivations of the Unconfident Fatalists, based only on their responses to the measures that were inputs into the segmentation. Because the constructs were derived from individual questions or statements in the interview using factor analysis, the numbers shown on the chart are construct scores rather than percentages. As such, these should be treated as comparative rather than absolute, and should be used to observe whether a particular segment is above or below average (and by how much), and how they compare against each other.

Figure 3.3: Motivations: Unconfident Fatalists



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)/Unconfident Fatalists (unwtd 1,101/wtd 866/ess 488)

The chart shows the construct scores for the segment constructs and compares them with the averages for the total sample. A circle on the chart shows that the segment is significantly more likely than average to score highly on the construct, and a square shows that the segment is significantly less likely than average to have a high score on the construct.

While Unconfident Fatalists were more likely than average to value their health, they were significantly less likely than average to feel that they have control over their own health or whether they lead a healthy lifestyle. They were also less likely than average to be health conscious.

As well as being less likely than average to feel that they have control over whether they could lead a healthy lifestyle, Unconfident Fatalists were also less likely than average to say that they intend to lead a healthy lifestyle and that they think a healthy lifestyle would be effective in reducing their chances of becoming ill, though they were not significantly less likely than average to feel that a healthy lifestyle would be enjoyable.

Unconfident Fatalists tended to have the lowest levels of self-esteem of any of the segments, and they were also less likely than average to engage in goal setting or risk-taking.

In terms of their health outlook, Unconfident Fatalists held a fatalistic view of their health. While they were no less likely than average to take a short-termist view, and were slightly more likely to agree that their health is at risk if they do not lead a healthy lifestyle, they showed one of the highest levels of health

fatalism (only the Live for Today segment was higher). Linked to this, they were the most likely to feel that they are at risk of poor health over the next few years which, linked to their feelings of fatalism and lack of control, might indicate that Unconfident Fatalists feel resigned to poor health in the future.

CHAID analysis<sup>32</sup> was conducted to enable us to understand which dimensions were key in driving Unconfident Fatalists into this segment. The key drivers were:

- low levels of self-esteem;
- low levels of feeling in control of their own health;
- low levels of feeling that it would be easy to lead a healthy lifestyle, and that they have control over whether or not they do so; and
- low levels of self-positivity (feeling that they are more likely than their peers to become ill over the next few years).

### Demographics, environment and lifestage

With 52% of this group female and 48% male, their gender balance is similar to that of the population as a whole. However, they are considerably older than average (mean age 46.8 years), and compared with the other segments, have a higher than average penetration of 65–74-year-olds (17% of this segment are aged 65–74, compared with an average of 11% and a range of 5%–13% among the other segments).

Reflecting their older age, they are less likely than average to be working, with 21% retired, compared with 13% on average. However,

32. CHAID Analysis (Chi-square Automatic Interactive Detection) is a tree-based segmentation technique that identifies whether a group of respondents is more or less likely to have a certain characteristic. This identification is based on the Chi-square statistic, which is a statistical test of independence. See G.V. Kass, An exploratory technique for investigating large quantities of categorical data, *Applied Statistics*, 29(2), 1980, pp. 119–27.

**Figure 3.4: Demographics/lifestage: Unconfident Fatalists**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)/Unconfident Fatalists (unwtd 1,101/wtd 866/ess 488)

even among those who were not retired there were higher proportions not working (26% of Unconfident Fatalists were not working, compared with 15% on average (see figure 3.4)).

In addition, the Unconfident Fatalists tend to have a lower NS-SEC profile than the other segments, with 43% in routine and manual occupations, compared with 35% among the population as a whole. Within this,

Unconfident Fatalists over-index on the following occupations:

- lower supervisory and technical occupations (13% compared with 10% on average);
- routine occupations (16% compared with 12% on average);
- never having been in paid employment (5% compared with 3% on average).

Unconfident Fatalists tend to live in more deprived areas: 52% live in the 40% most deprived areas in England as classified by IMD (defined as IMD bands 4–6) compared with 40% on average, and 14% live in the most deprived 10% of areas compared with 10% on average. Reflecting this, they are consistently more likely than average to hold negative views about their area:

- They are more likely than any other segment to say that their area has problems with alcohol, drugs or vandalism (37% compared with 32% on average).
- They are the least likely to say that it is easy to get to an outdoor space (mean of 4.2/5.0 compared with 4.5 on average).
- They also have the lowest construct scores on the social capital construct that brings together measures of satisfaction with their area and likelihood of having their wallet returned to them if lost (construct score of 3.5 compared with 3.8 on average).

Reflecting their older age profile, it is unsurprising that the Unconfident Fatalists are more likely than average to be in the 'older' lifestages and less likely to be in the Freedom years and Younger juggler/settler lifestages. However, it is interesting to note that they are no more likely to be in the Older settlers lifestage (i.e. without children) and more likely to be in the Older jugglers lifestage. They are more likely to be classified as Older jugglers because of caring responsibilities for other adults rather than because of the presence of dependent children in their household: only 34% have dependent children in their household (40% on average), but 18% have caring responsibilities for adults in their household (15% on average) and 11% have responsibility for more than 10 hours of care per week (6% on average).

The Unconfident Fatalists are particularly likely to be in the Active retirement lifestages: 14% were in Active retirement with a partner (7% on average) and 7% were in Active retirement without a partner (5% on average).

### 3.5.2 Live for Todays

The Live for Today segment also sits in the 'survivors' quadrant, towards the bottom left of figure 3.2.

#### Live for Todays

They definitely like to 'live for today' and take a short-term view of life. They believe that whatever they do is unlikely to have an impact on their health, so 'what's the point?'. They tend to believe in fate, both where their health is concerned and for other things in life. They value their health but believe that leading a healthy lifestyle doesn't sound like much fun, and think it would be difficult. They don't think they are any more likely than anyone else to become ill in the future. They tend to live in more deprived areas which gets them down, and they don't feel that good about themselves, but they feel more positive about life than the Unconfident Fatalists. They are the segment who are most likely to be resistant to change and don't acknowledge that their behaviour needs to change, unlike the Unconfident Fatalists.

The Live for Today segment makes up 25% of the total adult sample. This equates to around 9.5 million adults in England who may be classified in this segment.

#### Health motivations

Figure 3.5 shows the health motivations of the Live for Todays, which are again based only on their responses to the measures that were inputs into the segmentation and are shown as construct scores.

Members of the Live for Today segment were most likely to hold fatalistic views of health of

any of the segments. In addition, they were the least likely to link healthy lifestyles with health outcomes, being the least likely to think that their health is at risk if they do not lead a healthy lifestyle, and to think that a healthy lifestyle reduces their chances of becoming ill. However, they are more likely than average to value their health and no less likely than others to feel that they have control over their health.

In general, this segment holds very negative views of healthy lifestyles: they are the least likely to think that a healthy lifestyle would be enjoyable, and less likely to feel that they have control over whether or not to lead a healthy lifestyle or to say that they intend to lead a healthy lifestyle.

As well as holding a fairly short-term view of their health, Live for Todays also indicated that they hold short-term views related to their life in general: they were the most likely to say that they hold short-termist views, though they were no less likely to feel that they learn from their mistakes or exhibit goal-setting behaviour.

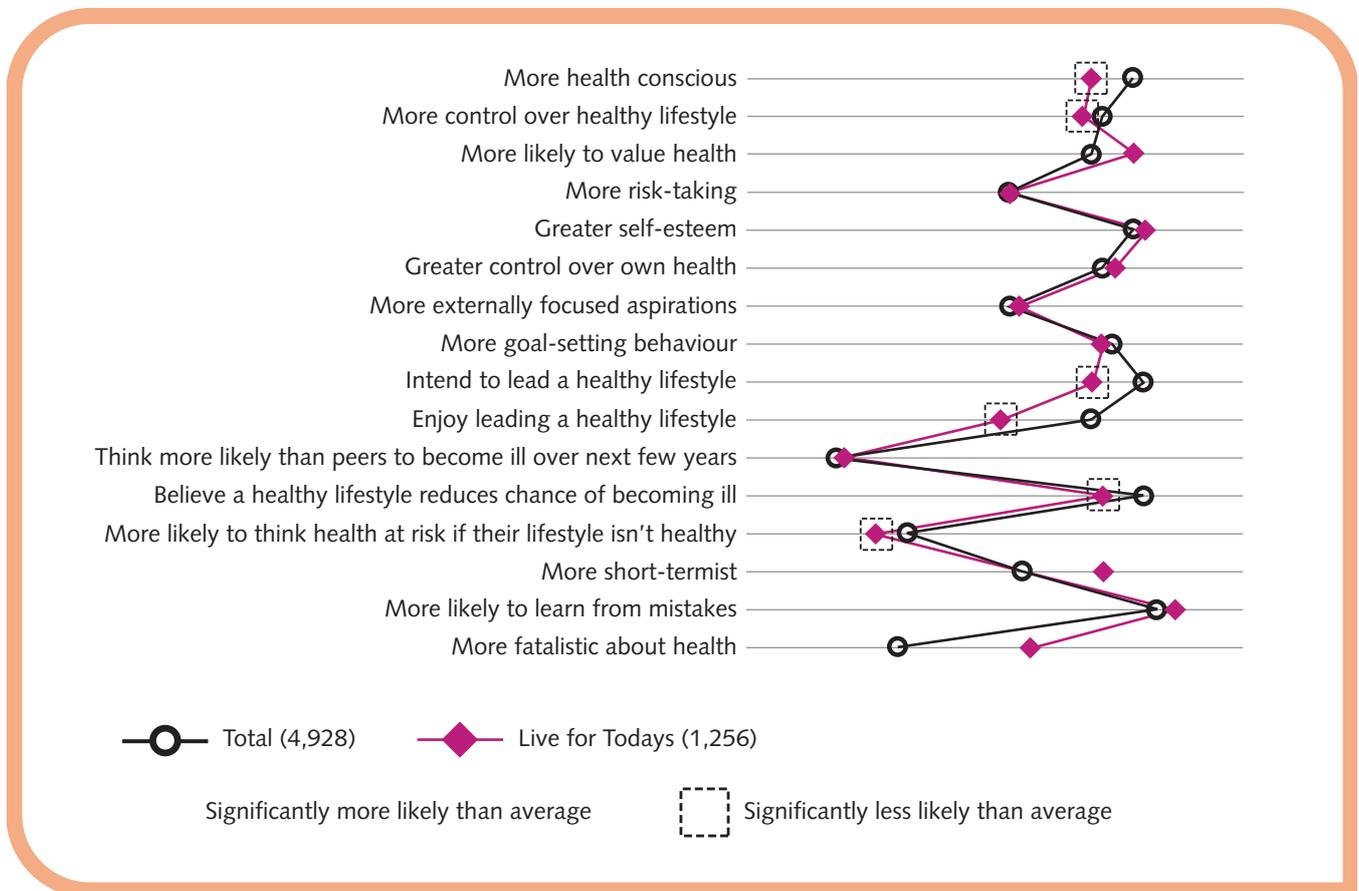
CHAID analysis indicated that the following dimensions were the key drivers of membership of the Live for Today segment:

- high levels of fatalism about health; and
- low levels of feeling that a healthy lifestyle would be enjoyable.

#### Demographics, environment and lifestage

The gender and age profiles of the Live for Today segment are very similar to those of the population as a whole: the average age of members of the segment is 42.4, compared with 42.7 on average.

Figure 3.5: Motivations: Live for Todays



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)/Live for Todays (unwtd 1,396/wtd 1,256/ess 642)

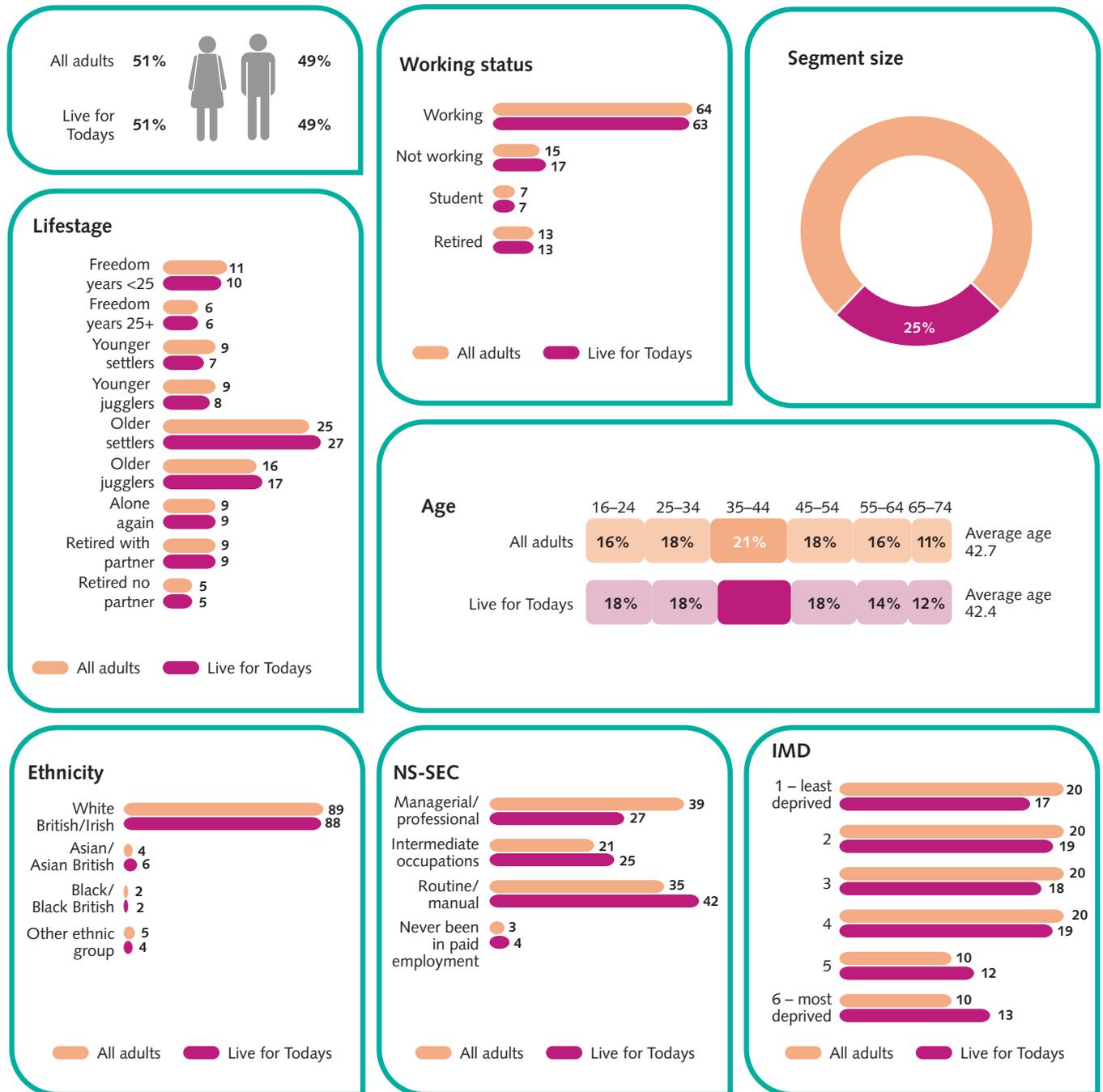
The working status of the Live for Today segment is also very similar to that of the population as a whole, with 63% working (64% on average) and 13% retired. However, the NS-SEC profile of the segment is quite different, with considerably fewer segment members in managerial/professional occupations (27% compared with 39% on average) and more in intermediate or routine/manual occupations (see figure 3.6). Within the Live for Today segment slightly higher than average proportions were in the following occupations:

- semi-routine occupations (17% compared with 13% on average);

- small employers and own-account workers (14% compared with 11% on average); and
- routine occupations (14% compared with 12% on average).

Their IMD profile tended towards the more deprived areas, although not to the same extent as the Unconfident Fatalists. Forty-four per cent of the Live for Today segment live in the 40% most deprived areas (52% of Unconfident Fatalists) and 13% live in the 10% most deprived areas (similar to the Unconfident Fatalists). However, views on issues to do with their area were not as negative as those of the Unconfident Fatalists, and the Live for Today segment scores about average on social capital measures.

**Figure 3.6: Demographics/lifestage: Live for Todays**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)/Live for Todays (unwtd 1,396/wtd 1,256/ess 642)

It is notable that the Live for Today segment contains a slightly higher than average proportion of members from an Asian/Asian British background (6% compared with 4% on average).

The Live for Today segment has a similar spread of lifestages to the population as a whole. They are slightly more likely than average to be in the Older settlers/jugglers lifestages than in the Younger settlers/jugglers groups. However, it is notable that the Live for Today lifestage is less likely than average to be

in the Freedom years aged under-25 lifestage (10% compared with 11% average).

Of all the segments, members of the Live for Today segment are the most likely to be living in a household with at least one other person who smokes, drinks heavily or takes drugs (35% compared with 29% on average).

### 3.5.3 Hedonistic Immortals

#### Hedonistic Immortals

These are people who want to get the most from life and they don't mind taking risks – as they believe that this is part of leading a full life. They feel good about themselves and are not particularly motivated by material wealth or possessions, or how they look. They know that their health is important to avoid becoming ill in the future, but feel quite positive about their health at the moment and don't think they'll be becoming ill any time soon. Maybe because of that they don't really value their health right now. They are not fatalistic about their health and don't have a problem with leading a healthy lifestyle, believing that it would be fairly easy and enjoyable to do so. They say they intend to lead a healthy lifestyle. However, they feel that anything that is enjoyable, such as smoking and drinking, cannot be all bad.

The Hedonistic Immortals make up 19% of the total adult sample, or around 7.2 million adults in England.

#### Health motivations

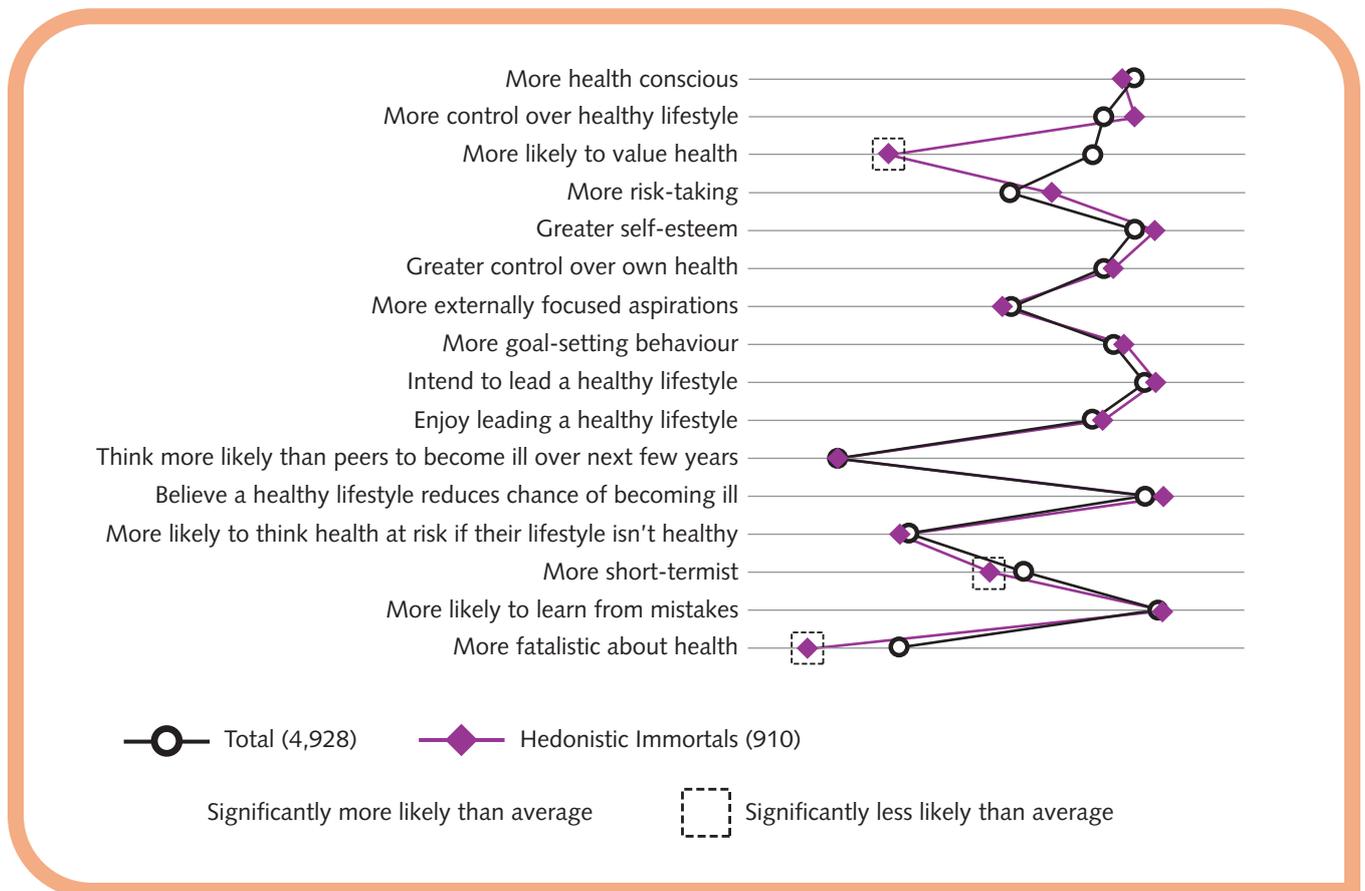
Figure 3.7 shows Hedonistic Immortals' health motivations, shown as construct scores.

Hedonistic Immortals are characterised by being the least likely of all segments to say that they value their health. However, this may be because the Hedonistic Immortals feel that their health is good: 88% said this, compared with 80% on average.

The Hedonistic Immortals understand the link between a healthy lifestyle and their longer-term health, being more likely than average to say that a healthy lifestyle reduces their chances of becoming ill. They also have lower than average scores for health fatalism and short-termism, and higher scores for control over whether or not to lead a healthy lifestyle.

Hedonistic Immortals also have high levels of self-esteem.

**Figure 3.7: Motivations: Hedonistic Immortals**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)/Hedonistic Immortals (unwtd 652/wtd 910/ess 400)

The segment has been named Hedonistic Immortals because of their health behaviours (being more likely than average to smoke, drink heavily and take illegal drugs) and their young age: indicating that they know the dangers of their behaviour but perhaps feel that they are immune to these dangers.

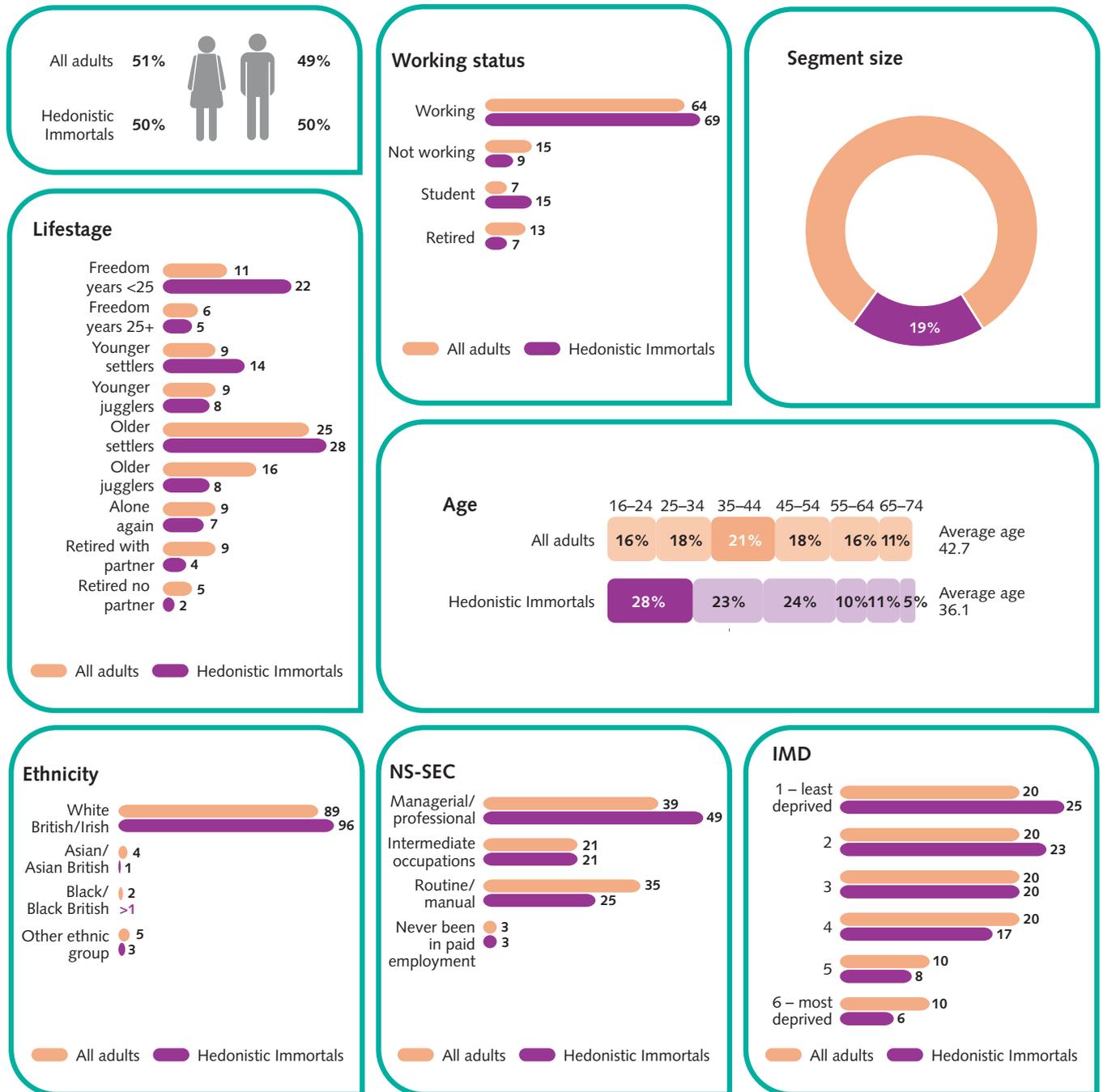
The following dimensions were key drivers of membership of the Hedonistic Immortals segment, as indicated by the CHAID analysis:

- low levels of valuing health; and
- low levels of health fatalism.

### Demographics, environment and lifestage

While the gender balance for the Hedonistic Immortal segment is very similar to the adult population as a whole, they tend to be considerably younger (with an average age of 36.1 compared with 42.7 on average), and with a high proportion of the segment drawn from those aged under 35 (51% compared with 34% on average). The Hedonistic Immortals are therefore the youngest of all the segments (see figure 3.8).

Figure 3.8: Demographics/lifestage: Hedonistic Immortals



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)/Hedonistic Immortals (unwtd 652/wtd 910/ess 400)

Reflecting their younger age profile, the Hedonistic Immortals have the highest proportion of members who are students (15% compared with 7% on average), but also a higher than average proportion in work (69%, compared with 64% on average).

NS-SEC was assessed at the household level, and for many of the younger Hedonistic Immortals this will reflect the occupation of their parent rather than their own occupation, given that 79% of Hedonistic Immortals aged under 25 were living with their parents.

Regardless of whether NS-SEC is assessed against the respondent or their household, it still gives a good indication of their home background. Hedonistic Immortals were more likely than average to come from a managerial/professional household (49% compared with 39% on average), and less likely to come from routine/manual households (25% compared with 35% on average).

Reflecting the more upmarket households in which they live, Hedonistic Immortals tended to come from less deprived areas: almost half (48%) live in the 40% least deprived areas in England, and only 14% come from the 20% most deprived areas. It is therefore unsurprising to note that they were less likely than average to note problems with drugs, alcohol or vandalism in their local area (29% compared with 32% on average and 37% of Unconfident Fatalists).

Hedonistic Immortals were less likely than average to come from ethnic minorities: 96% classified themselves as White British/Irish compared with 89% on average.

Reflecting their younger age, it is unsurprising that the Hedonistic Immortals are more likely to come from the younger lifestages: they have the highest penetration of all segments in the Freedom years aged under 25 (22% compared with 11% on average) and in the Younger settler lifestage (14% compared with 9% on average).

Their likelihood of living in a household with someone who smokes, drinks heavily or takes illegal drugs is about average, at 29%.

### 3.5.4 Balanced Compensators

#### Balanced Compensators

They are positive and like to look good and feel good about themselves. They get some pleasure from taking risks. However, they don't take risks with health. Health is very important to them, and something they feel in control of. A healthy lifestyle is generally easy and enjoyable. They are not fatalists when it comes to health and understand that their actions impact on their health both now and in the future. They believe they are much less likely to become ill than their peers. If they do take some health risks, they will use compensatory mechanisms to make up for this, such as going for a run in the morning having eaten a big meal or drunk too much the night before.

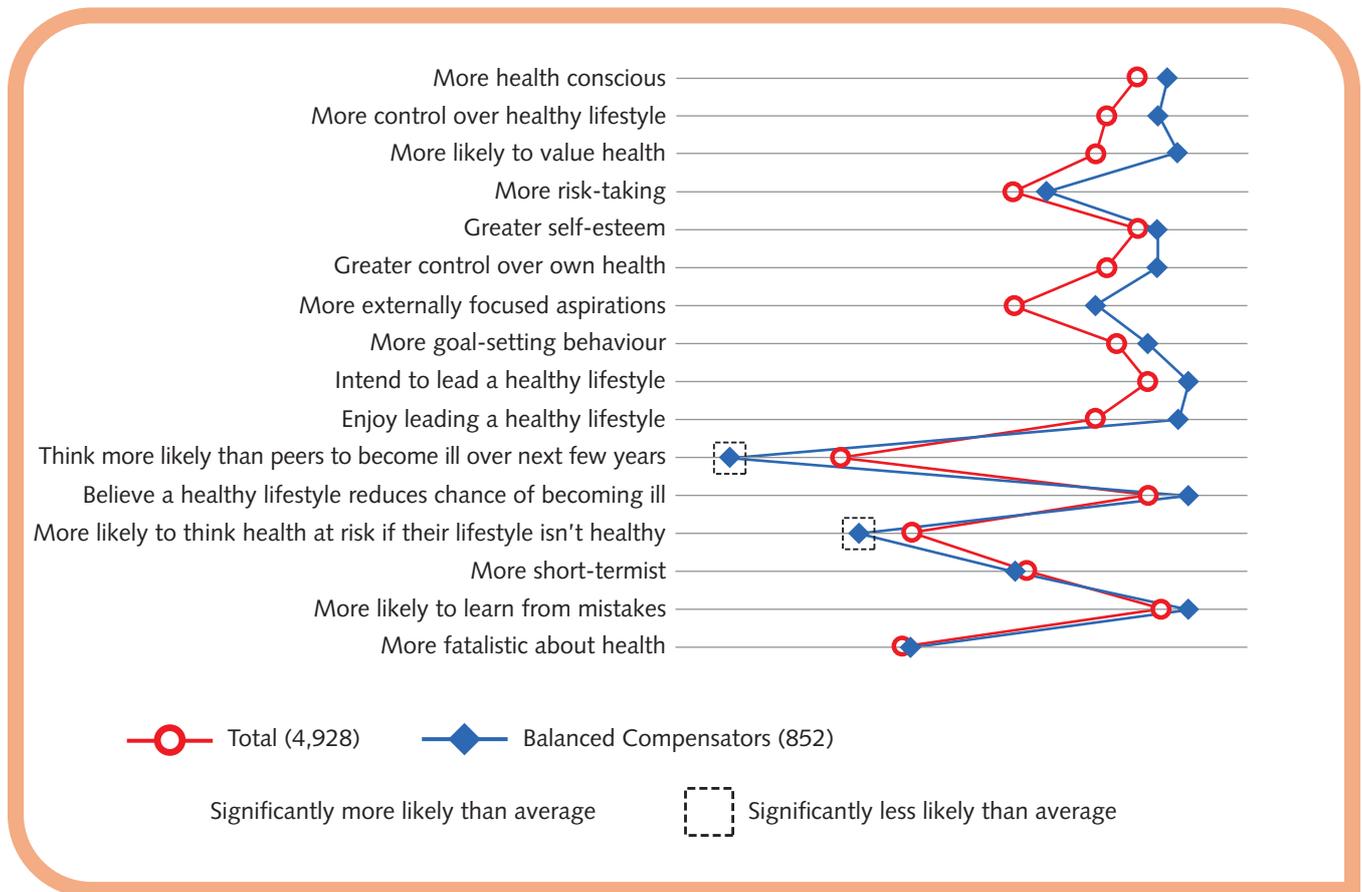
The Balanced Compensators make up 17% of the total adult sample, or around 6.5 million adults in England.

#### Health motivations

Figure 3.9 shows Balanced Compensators' construct scores on the various health motivation measures that were input into the segmentation.

Balanced Compensators tend to have very positive views of their health and a healthy lifestyle. They have the highest construct score on health consciousness, and are the most likely to say that they value their health. They are also more likely than average to feel that a healthy lifestyle reduces their chances of becoming ill, although it is interesting to note that they are less likely to think that their health is at risk if they don't follow a healthy lifestyle – this latter finding may be linked to the fact that they already feel that they are in

**Figure 3.9: Motivations: Balanced Compensators**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)/Balanced Compensators (unwtd 843/wtd 852/ess 433)

good health (92% felt this compared with 80% on average) and are already leading a healthier lifestyle. The Balanced Compensators also have the lowest proportion thinking that they are more likely than their peers to become ill over the next few years, and are the most likely to feel in control of their health.

Balanced Compensators hold the most positive views of a healthy lifestyle, being either most or second most likely to feel that a healthy lifestyle would be enjoyable and within their control and to say that they intend to lead a healthy lifestyle.

Balanced Compensators are characterised by having one of the highest construct scores for risk-taking (only Hedonistic Immortals are

higher), and they also have high levels of self-esteem, although it is notable that they have the highest score for externally focused aspirations (i.e. aspiring to look good or have material possessions).

The following dimensions were key drivers of membership of the Balanced Compensators segment, as indicated by the CHAID analysis:

- low proportions thinking they are more likely than their peers to become ill over the next few years; and
- high levels of externally focused aspirations.

**Figure 3.10: Demographics/lifestage: Balanced Compensators**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)/Balanced Compensators (unwtd 843/wtd 852/ess 433)

### Demographics, environment and lifestage

The Balanced Compensators are biased towards males (56% are male compared with 51% on average) and their age profile is slightly younger than average, although not to the same extent as the Hedonistic Immortals (Balanced Compensators' average age is 41.2 compared with 42.7 on average and 36.1 among Hedonistic Immortals) (see figure 3.10).

Balanced Compensators are more likely than average to be in work (72% compared with 64% on average), and are slightly more likely to come from managerial/professional households (41% compared with 39% on average).

In terms of the area in which they live, their IMD profile is very similar to average, although they are more likely than average to live in IMD band 4 (20–40% most deprived areas) and less likely to live in band 5 (10–20% most deprived areas).

The Balanced Compensators have the highest penetration of non-White British/Irish respondents: 80% come from the White ethnic group compared with 89% on average. Balanced Compensators are more likely than average to come from Asian (8%) or Black (5%) backgrounds.

Their lifestage profile is similar to that of the population as a whole, although Balanced Compensators are more likely than average to be in the Freedom years aged 25 and over lifestage (8%).

Reflecting their motivations and own behaviour, it is unsurprising to note that Balanced Compensators are the least likely of all segments to say that they live with someone in their household who smokes, drinks heavily or takes illegal drugs (23%).

### 3.5.5 Health-conscious Realists

#### Health-conscious Realists

These are motivated people who feel in control of their lives and their health. They generally feel good about themselves, but have more internally focused aspirations to better themselves, learn more and have good relationships, rather than just aspiring to looking good and acquiring wealth. They tend not to take risks and take a longer-term view of life, and that applies to their health too. Their health is very important to them, and they feel that a healthy lifestyle is both easy to achieve and enjoyable. They also take a realistic view of their health: of all the segments, they are the least fatalistic about their health, and don't think they are any more or less likely than other people to become ill. Unlike the Balanced Compensators, they don't use compensatory mechanisms. This may be because they are so health conscious that there's no need for them to balance out health behaviours.

The Health-conscious Realists make up 21% of the total adult sample, or around 8 million adults in England.

### Health motivations

Health-conscious Realists' construct scores on the various health motivation measures that were input into the segmentation are shown in figure 3.11.

In a similar way to the Balanced Compensators, Health-conscious Realists have very high scores for health consciousness, valuing their health, feeling in control of their health and linking a healthy lifestyle with good health. Both segments have very low scores on the health fatalism dimension.

Both the Balanced Compensators and Health-conscious Realists hold very positive views of a healthy lifestyle, feeling that they have

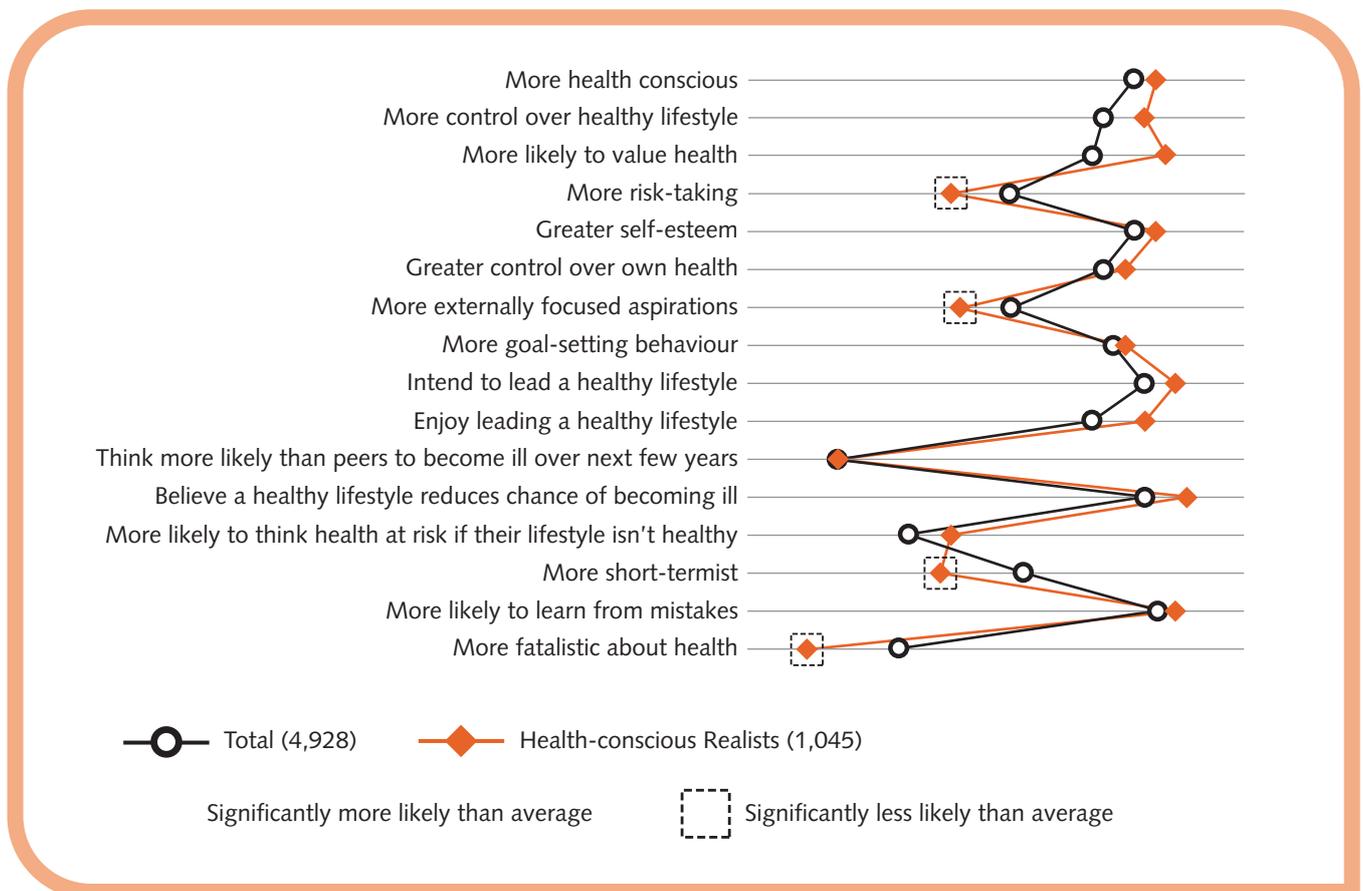
control over whether or not they need a healthy lifestyle, that it would be enjoyable and that they intend to pursue a healthy lifestyle.

The two segments are also similar in their high levels of self-esteem and low levels of short-termism.

The main differences between the two segments are as follows:

- While Balanced Compensators have fairly high scores on the risk-taking dimension, the scores for Health-conscious Realists were the lowest of all segments.

**Figure 3.11: Motivations: Health-conscious Realists**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)/Health-conscious Realists (unwtd 936/wtd 1,045/ess 547)

- Health-conscious Realists also have the lowest scores for externally focused aspirations (i.e. aspiring to look good or have material possessions), while the scores for Balanced Compensators were the highest.
- Balanced Compensators have the lowest scores for feeling that they are more likely than their peers to become ill over the next few years, but the responses from Health-conscious Realists were similar to average.

The CHAID analysis indicated that the following dimensions were key drivers of membership of the Health-conscious Realists segment:

- high-levels of valuing their health;
- low levels of health fatalism; and
- low levels of risk-taking.

### **Demographics, environment and lifestage**

The Health-conscious Realists were one of the oldest segments, with an average age of 46.7 compared with 42.7 among all adults (see figure 3.12): the Unconfident Fatalists were of a similar age (46.8 on average).

Reflecting their older age profile, this group contained more females than average (57% compared with 51% on average) and were more likely to be retired (16%), though not to the same extent as the Unconfident Fatalists (21%).

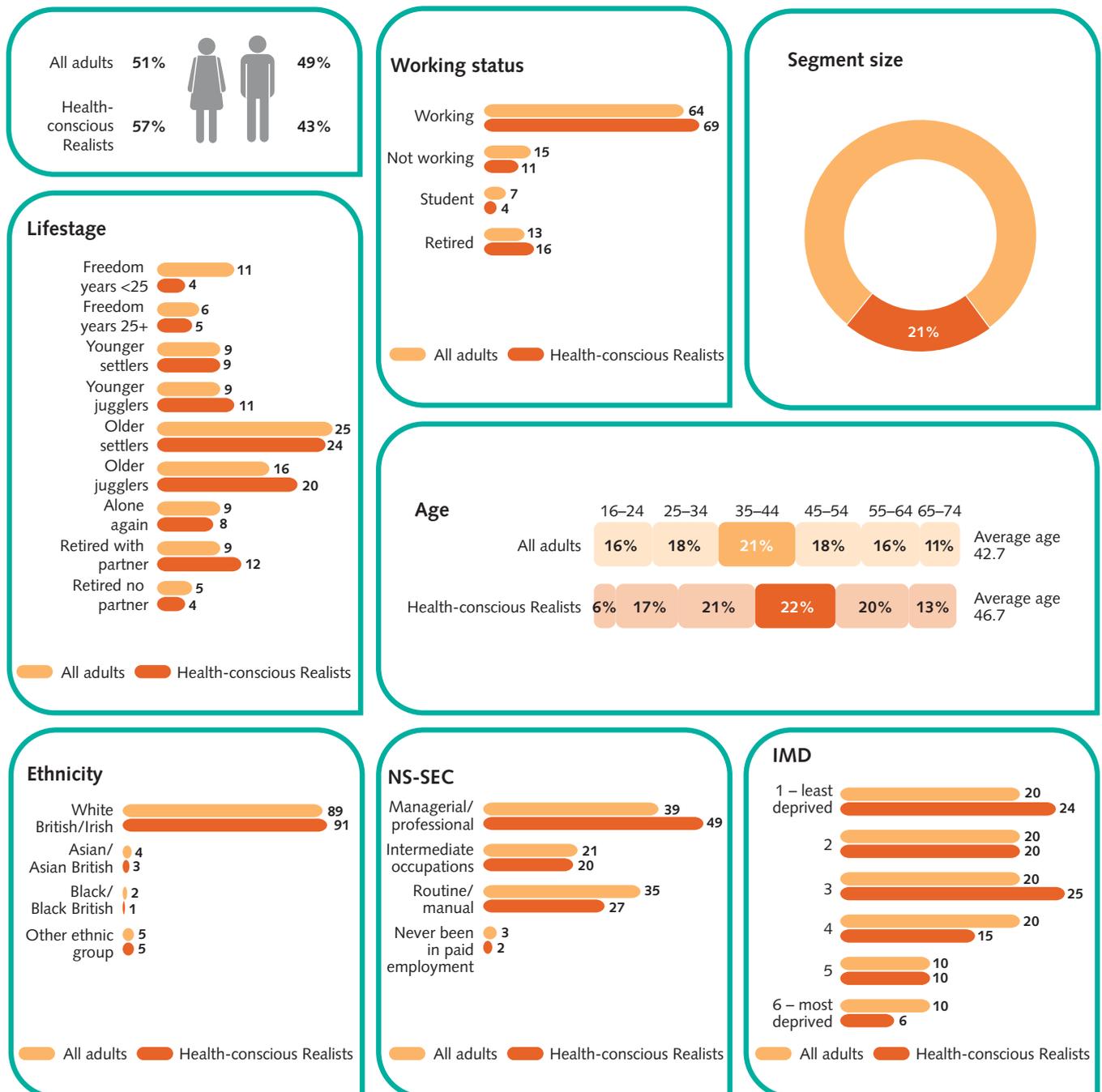
However, it is also notable that the Health-conscious Realists were more likely than average to be working (69% compared with 64% on average), and tended to come from households with higher NS-SEC profiles. Just under half (49%) of Health-conscious Realists were from managerial/professional households, compared with 39% on average.

Health-conscious Realists tended to come from less deprived areas: almost seven in ten (69%) came from the 60% least deprived areas, and only 6% came from the 10% most deprived areas. Reflecting this, the Health-conscious Realists were less likely than average to report problems with alcohol, drugs or vandalism in their area (29% compared with 32% on average). They also have the highest levels of social capital of all of the segments.

The ethnic profile of the Health-conscious Realists is very similar to the average for all adults.

Their lifestage profile reflects their older age profile: being more likely to be in the Older jugglers (20% compared with 16% on average) and Retired with partner segments (12% compared with 9% on average). Health-conscious Realists were more likely than average to have a partner, and therefore less likely than average to come from the unpartnered older lifestages (Retired with no partner, Alone again).

**Figure 3.12: Demographics/lifestage: Health-conscious Realists**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)/Health-conscious Realists (unwtd 936/wtd 1,045/ess 547)

### 3.5.6 Summary: motivation segments

Figure 3.13 provides a summary of the motivational differences between the five segments.

The figure has been coded to show differences between positive and negative motivations:

- More positive motivations are shown shaded in green.

Figure 3.13: Summary of motivational differences between motivation segments

Motivational construct	Segment				
	Health-conscious Realists	Balanced Compensators	Live for Todays	Hedonistic Immortals	Unconfident Fatalists
Value health	High	High	Med	Low	Med
Control over health	High	High	Med	Med	Low
Healthy lifestyle is easy/enjoyable	High	High	Low	Med	Low
Health fatalism	Low	Med	High	Low	High
Risk-taking	Low	High	Med	High	Med
Short-termism	Low	Med	High	Low	High
Self-esteem	High	High	Med	High	Low

Key ■ More positive motivation ■ More negative motivation

- More negative motivations are shown shaded in light blue.

Health-conscious Realists had the highest levels of health motivation, as all of the cells shown on the chart indicate that they hold more positive motivations. Balanced Compensators also appear to hold positive motivations, although not to the same extent as the Health-conscious Realists.

The Unconfident Fatalists appear to have the lowest levels of positive motivations and the highest levels of negative motivations.

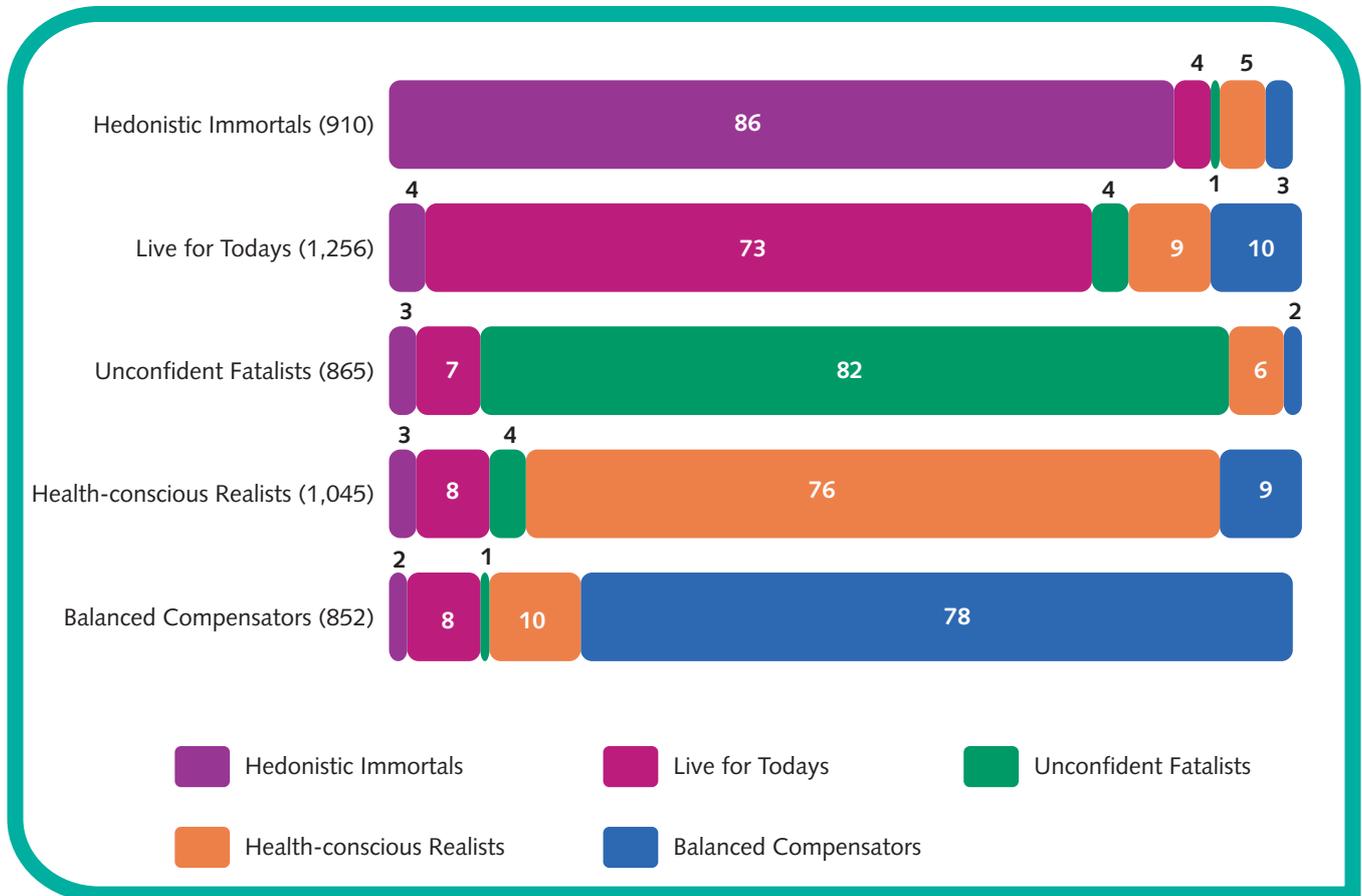
### 3.6 Testing the motivation segments

In order to provide a straightforward test of the statistical robustness of the segmentation, a discriminant analysis was conducted (see figure 3.14). This analysis seeks to reassign the original respondents to the five segments on the basis of the health motivation inputs for each individual. Typically we look for a reassignment accuracy of 85–95% as an indication that the segmentation solution is suitably robust. Overall accuracy for our solution was 88%.

The actual segment allocations from our discriminant analysis were then analysed further. While a small proportion of respondents were allocated to adjacent segments, three-quarters or more of respondents were allocated to their 'correct' segment. The highest levels of mis-allocation placed respondents into adjacent segments: for example around one in ten of the Live for Today segment were allocated to the Health-conscious Realists and Balanced Compensator segments. In addition, around one in ten of the Health-conscious Realists were allocated to the Balanced Compensators segment (see figure 3.14).

The discriminate analysis produces an algorithm (a series of equations) that can be used in future research to assign new respondents to the existing segmentation. Several versions of the allocation algorithm were developed to enable researchers to make use of the segmentation in other work:

**Figure 3.14: Results of discriminant analysis on motivation segments; figures are percentages**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

- A full version, which comprises 19 question items: using the full algorithm 88% of respondents are allocated to the ‘correct’ segment. This algorithm takes the form of a spreadsheet, as calculations are too complex to be carried out by hand (see appendix 15).
- A shorter version comprising six question items and yielding an accuracy of 67% is also available.

Both versions of the algorithm are available from the Department of Health (DH).

### 3.7 Profile of motivation segmentation by health behaviours/health states

In this section we examine the individual health behaviours by each of the five motivation

segments identified, looking at similarities and differences in behaviours.

#### 3.7.1 Smoking

The survey found that overall, 22% of adults were currently smokers. Looking at the five segments, smoking was most prevalent among the Live for Today segment, where a third of respondents currently smoke (32%). Those in the Unconfident Fatalist segment were also much more likely to smoke than adults overall – 28% of this segment were smokers. Just under two in five (19%) of the Hedonistic Immortals were smokers. Balanced Compensators (15%) and Health-conscious Realists (15%) were the segments least likely to contain smokers (see figure 3.15).

**Figure 3.15: Proportion of respondents (%) smoking by motivation segment (QG13)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

### 3.7.2 Alcohol consumption

Figure 3.16 shows the proportion of respondents drinking more than the recommended guidelines of alcohol in each segment. The degree of variation in the proportion consuming excess alcohol by each of the segments was not as great as for some of the other health behaviours. Hedonistic Immortals were the segment with the highest

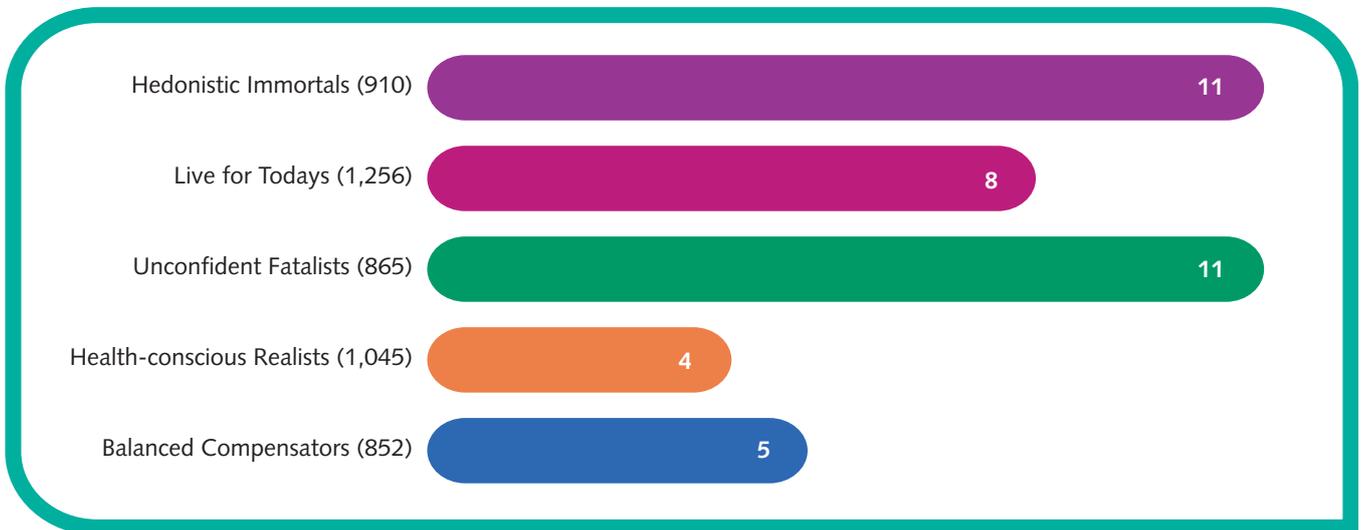
proportion, drinking more than the recommended maximum intake (at 28%) and the lowest proportion was found among the Unconfident Fatalists (22%). This latter finding is noteworthy, given that this segment displayed the least healthy habits compared to the other segments for most of the other key health behaviours.

**Figure 3.16: Proportion of respondents (%) drinking more than recommended maximum weekly intake of alcohol by motivation segment (QG18/QG19/QG21)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Figure 3.17: Proportion of respondents (%) who had taken illegal drugs in the past 12 months by motivation segment (QG25)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

### 3.7.3 Drug taking

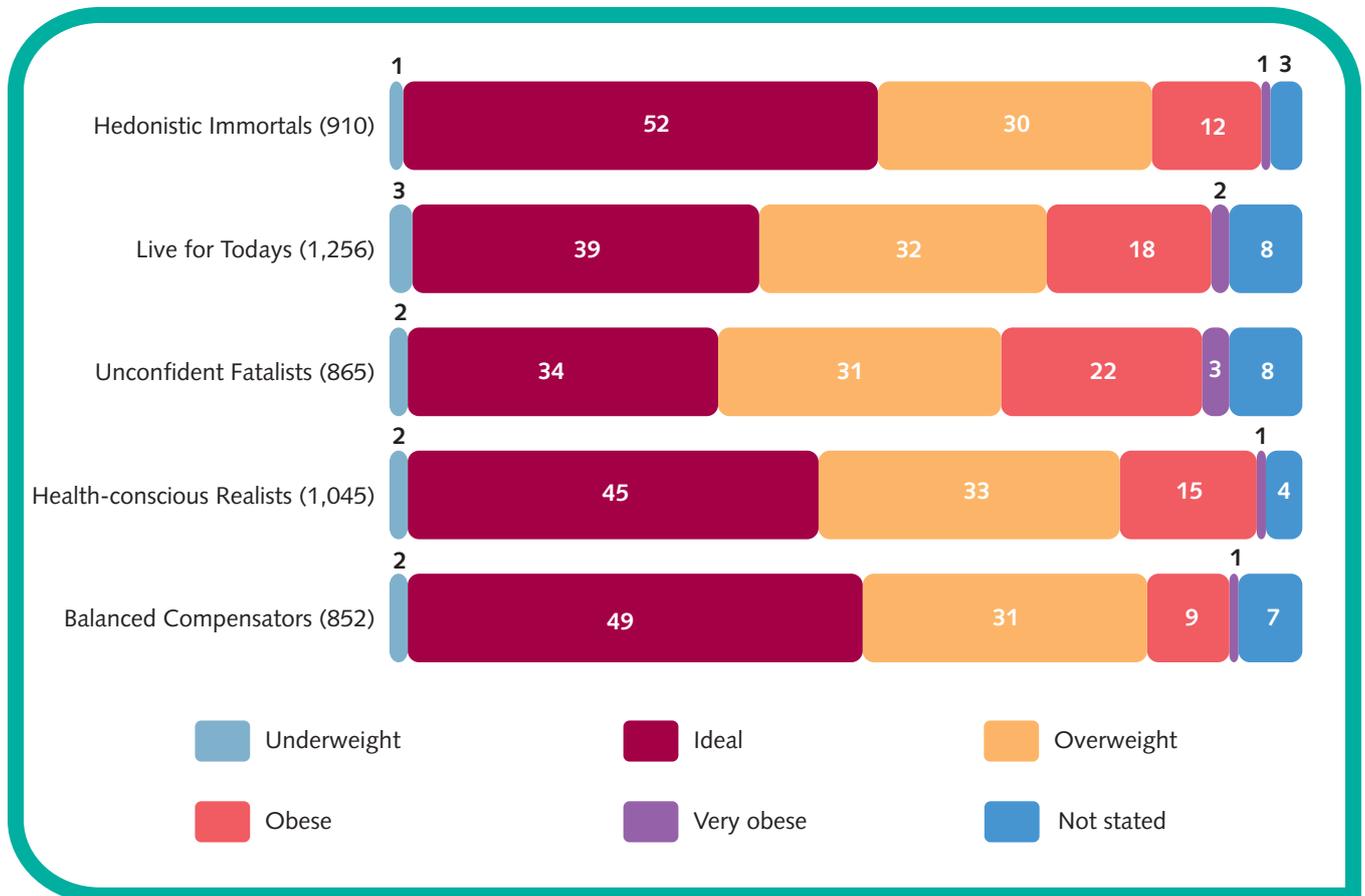
Figure 3.17 shows the proportion of respondents in each segment who had taken any kind of illegal drugs in the past 12 months. Just over one in ten (11%) of the Hedonistic Immortals segment and the same proportion of Unconfident Fatalists had taken drugs in this period. Lower penetrations of drug usage were found in the other three segments – 8% among Live for Todays, 5% among Balanced Compensators and 4% among Health-conscious Realists.

### 3.7.4 BMI score

BMI scores were analysed for each of the segments. A high BMI score (over 25) is associated with many illnesses. Respondents in the Hedonistic Immortals segment were most likely to have an ideal BMI of 18.5–25.0 (52%), closely followed by the Balanced Compensators (49%). Forty-five percent of Health-conscious Realists had an ideal BMI; however, the proportions fall to 39% of the Live for Today segment and to 34% of the Unconfident Fatalists (see figure 3.18).

There were few underweight respondents in each of the segments (BMI under 18.5), the proportion being highest for the Live for Today segment at just 3%. It is interesting to note that the proportion of overweight respondents (BMI 25.1–30.0) was similar in each of the segments, making up around a third of each segment. However, there were significant differences in the proportion of obese respondents (BMI 30.1–40.0), which accounted for 22% of the Unconfident Fatalists segment compared with just 9% of the Balanced Compensators. There were also high levels of obese respondents in the Live for Today segment (18%). As well as having the highest proportion of obese respondents and the lowest with ideal BMI, the Unconfident Fatalists also had the highest level of very obese respondents at 3% (BMI 40.1+). It is worth noting that the segments with the highest proportion of respondents with high BMIs were also the segments where respondents were less likely to provide their height and weight in order to allow a BMI to be calculated (8% not stated for both the

Figure 3.18: BMI by motivation segment (%) (QG5/QG8)



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

Unconfident Fatalists and the Live for Today segment).

### 3.7.5 Exercise

Physical activity levels were captured by calculating the proportion of respondents in each segment who were doing the recommended levels of physical activity, defined as at least 30 minutes of exercise five or more times each week.

Balanced Compensators were the segment with the highest proportion of respondents undertaking the recommended amount of exercise (37%). Despite this, the vast majority of respondents in this segment were still not getting the recommended amount of exercise. Three further segments all had around a third (35%) undertaking the recommended level of exercise each week. The lowest proportion of respondents undertaking the recommended levels of exercise were the Unconfident Fatalists, with just 28% doing the recommended amount (see figure 3.19).

**Figure 3.19: Proportion (%) who get recommended five sessions of 30 minutes of exercise per week or more by motivation segment (QF4/QF5/QF6)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

### 3.7.6 Five+ portions of fruit and vegetables per day

Health-conscious Realists (48%), Hedonistic Immortals (47%) and Balanced Compensators (45%) were all significantly more likely to be eating five or more portions of fruit and vegetables per day than the Unconfident Fatalists (37%) and the Live for Today segment (31%) (see figure 3.20). This corresponds with

the health behaviours of these two latter groups, which have demonstrated a greater propensity to undertake less healthy behaviours.

### 3.7.7 Mental health

As shown in figure 3.21, the proportion of respondents with high GHQ scores (4 or higher) was similar for four of the five

**Figure 3.20: Proportion (%) who eat five or more portions of fruit/vegetables per day by motivation segment (QF1a/QF1b)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Figure 3.21: Proportion (%) with a high GHQ score (a score of 4 or more on GHQ-12) by motivation segment (QG35–QG45a)**



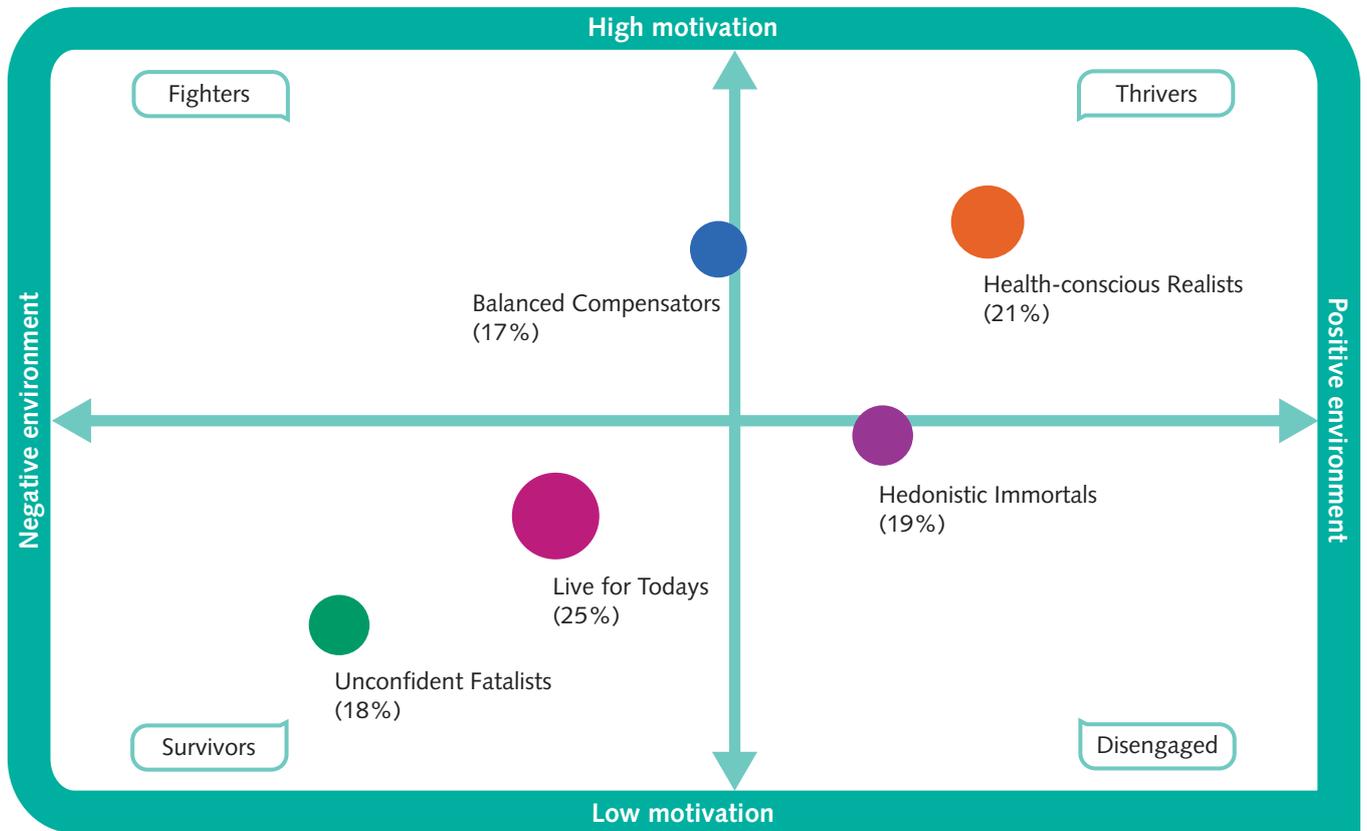
Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

segments, with 12% of Health-conscious Realists, 13% of Hedonistic Immortals and 14% of both Live for Todays and Balanced Compensators having a high GHQ score. However, the proportion of Unconfident Fatalists with a high GHQ score was significantly greater at 35%.

### 3.8 Summary

- The hypothesis outlined in the introduction section of this report suggested that in addition to people's lifestyles and environment, people's motivations may also play a role in health behaviours. Attitudinal constructs were identified as possible drivers of several behaviours.
- The motivation dimension was developed following a thorough literature review that identified constructs having a relationship with health behaviour. Two rounds of quantitative piloting were conducted to further develop and refine the dimension.
- The final dimension was made up of 16 constructs, which were identified from the literature review. Each was highly correlated with health behaviours. The dimension was developed using ensemble cluster analysis and the chosen solution comprised five segments, each of which comprised between a fifth and a quarter of the adult population, as shown in figure 3.22.
- The Unconfident Fatalists and Live for Today segments sit in the 'survivors' quadrant, as they have fairly low levels of motivation towards their health, and tend to come from the most deprived areas. The Health-conscious Realists sit in the 'thrivers' quadrant, with high levels of motivation and coming from more positive environments. The Balanced Compensators and Hedonistic Immortals sit on the borders of the 'thrivers' quadrant.

Figure 3.22: Proportion of respondents in each motivation segment



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

Figure 3.23: Summary of motivational differences between motivation segments

Motivational construct	Segment				
	Health-conscious Realists	Balanced Compensators	Live for Todays	Hedonistic Immortals	Unconfident Fatalists
Value health	High	High	Med	Low	Med
Control over health	High	High	Med	Med	Low
Healthy lifestyle is easy/enjoyable	High	High	Low	Med	Low
Health fatalism	Low	Med	High	Low	High
Risk-taking	Low	High	Med	High	Med
Short-termism	Low	Med	High	Low	High
Self-esteem	High	High	Med	High	Low

Key ■ More positive motivation ■ More negative motivation

- Figure 3.23 summarises the key differences between the segments in terms of their health motivations based on the key inputs to the segmentation. The segments have been tested to ensure that they are stable and replicable, and allocation algorithms have been developed to enable researchers to make use of the segmentation in other work.
- The motivation segments discriminate well on health behaviours and states, and in particular in relation to smoking, fruit/vegetable consumption, BMI and mental health.

# 4 Environment Dimension

This chapter gives an overview of how the environment dimension of the Healthy Foundations framework was developed and refined. The full statistical analysis is provided in the survey technical report.

## 4.1 Hypothesis

The environmental circumstances in which people live may have a clear influence on their health behaviours. This is supported by a wealth of literature and data that demonstrates a correlation between poor circumstances and multiple health issues.

National and international research has identified that not only is the environment important in determining health behaviours, but it also plays a crucial role in influencing people's ability to make changes to their lifestyle that could benefit their health.<sup>33</sup>

The hypothesis identified three broad categories/factors that were considered key for further analysis:

- Social – being surrounded by positive and negative social norms. This might include certain professions (e.g. manual workers), students and particular schools. There is also evidence that ethnic, cultural and faith norms can act on people in the same way and should be included here where appropriate.

- Physical – living in a deprived community affects the quality of people's local amenities and the facilities available to them.
- Economic – surviving for long periods of time on a low income. There is a distinct positive correlation between long-term unemployment and poor health.

It was hypothesised that these three factors would capture what can broadly be referred to as the 'environment' in which people live and operate. In terms of how these factors would work within a segmentation, they would be grouped along an environmental dimension. Those suffering with negative responses for all three factors would be at the most negative end of the axis, and therefore may be the most at risk of negative health behaviours and the least likely to be able to make positive changes to their lifestyle.

## 4.2 Initial development of the environment dimension and issues encountered

The first stage of developing the environment dimension was to identify which questions should be included in the analysis. Selection of these questions was based around the recommendations in the hypothesis report, as well as detailed discussions between the core project stakeholders. The questions are shown in table 4.1.

33. Commission on Social Determinants of Health, *Closing the Gap in a Generation: Health equity through action on the social determinants of health*, World Health Organization, 2008.

The identification of these core questions highlighted two main issues. First, the themes to which they related were very broad. Second, respondents' answers to these might be more subjective than objective, as illustrated by the example below.

For instance, one of the questions identified for potential inclusion was whether people experienced specific issues with their area such as vandalism, alcohol use and drug dealing and use. When looking at the results by key demographics it was noted that certain groups of people answered very differently to this question despite living in similar areas. People have different levels of tolerance to the environments in which they live and, while this in itself is an important construct, it may confound any objective measure of their environment, and they may have answered from a subjective rather than an objective point of view.

In this light, the expert team had detailed discussions of how the environment segmentation should be taken forward. The following criteria were identified to be key to the success of the segmentation:

- It should be easily understood by field practitioners and not overly complicated.
- Measures used within the segmentation should be as objective as possible, to help avoid potentially inaccurate placement of people on the environment axis.
- It should be easy to replicate in future studies.

## 4.3 Potential ways forward

These discussions identified two potential ways forward for creating the environment dimension, and the pros and cons of both of these approaches are discussed later in the report. The two approaches were to:

- proceed in producing an environment dimension to test the hypothesis while acknowledging its limitations; and
- produce a simpler alternative to the environment dimension, which will be more user-friendly for practitioners.

### 4.3.1 Validating the hypothesis

#### Factor analysis

The former approach was appealing as it allowed the opportunity of exploring the initial, more complex, hypothesis that included social, physical and economic dimensions. However, it was acknowledged that this approach would be challenging, not least because of the wide range of inputs and the fact that many of the variables were binary inputs and not categorical scales, and therefore could lead to more unstable segments than we would normally expect.

Factor analysis was conducted on the questions identified for potential inclusion in the segmentation, to establish any underlying constructs.<sup>34</sup> In total 13 factors were identified, outlined in table 4.1.

Analysis of the key behaviours by the factors established that the factors differentiated well on these types of health behaviours (see table 4.2). For example, people living in areas with Indices of Multiple Deprivation (IMD) scores less than the median were more likely to have

34. Please see appendix 2 for a full list of questions and the factor analysis.

**Table 4.1: Environment constructs**

Construct	Questions contributing to the construct
Social norms: parents' opinions	When it comes to other people's opinions, whose are generally the most important to you? And of these, whose opinion is MOST important to you? Parents' opinion
Social norms: spouse/children's opinions	When it comes to other people's opinions, whose are generally the most important to you? And of these, whose opinion is MOST important to you? Spouse or children's opinion
Social norms: others' opinions	When it comes to other people's opinions, whose are generally the most important to you? And of these, whose opinion is MOST important to you? Others' opinions (not parents, spouse or children)
IMD score	Derived from postcode data
Issues with area: alcohol, drugs and vandalism	Here are some things that can cause problems for people in their area. Can you tell me which three of these are the most serious problems in your area? Alcohol use, drug dealing and use, and vandalism and deliberate damage to property
Household influences (smoking, drinking, drugs)	Can you tell me whether anyone in your household does any of the following nowadays? You don't need to say who. Smokes cigarettes, drinks a lot of alcohol, takes illegal drugs
Parental autonomy	I feel that my parents allow(ed) me to make my own choices
Parental autonomy	My parents have (had) confidence in my ability to do well
Isolation	How often, if at all, do you see or speak to a relative or other adult who doesn't live in your household? You could speak to them on the phone
Time stress	When you need more time do you tend to cut back on your sleep?
Time stress	Do you feel under stress when you don't have enough time?
Social capital (civic action or participation)	During the last 12 months, have you given any unpaid help to any groups, clubs or organisations in any of the ways shown on this card?
Social capital (satisfaction with area/wallet return likelihood)	Thinking in general, how satisfied are you with this area as a place to live?
Social capital (satisfaction with area/wallet return likelihood)	Suppose you lost your (purse/wallet) containing your address details, and it was found in the street by someone living in this neighbourhood. How likely is it that it would be returned to you with nothing missing?
How household gets on financially	Thinking generally, which of the phrases on the card best describes how your household are getting along financially nowadays?
Ease of getting to an outdoor space/leisure centre	From here, how easy it is for you personally to get to an outdoor space, leisure centre or community centre where you could do sport or exercise?

**Table 4.2: Differentiation of environmental constructs on key behaviours/health state**

	Social norms: parents' opinions		Social norms: others' opinions		Social norms: partner/children's opinions		Issue with area: problems with home		IMD		Issues with area: public transport, roads, dogs		Issues with area: alcohol, drugs, vandalism	
	No	Yes	No	Yes	No	Yes	No	Yes	Below median	Above median	No	Yes	No	Yes
5+ portions of fruit/veg per day	117*	81^	83^	107*	80^	110*	111*	81^	128*	77^	93^	115*	104	91
5+ exercise sessions of 30 minutes or more per week	106	93	96	101	110	96	98	103	93	107	106*	89^	109*	83^
Alcohol intake: below recommended	97^	104	97	101	103	99	92^	119*	90^	112*	101	99	101	98
Smoke nowadays: no	116*	84^	115*	95^	74^	116*	113*	81^	147*	72^	91^	122*	97	106^
Illegal drugs in past 12 months: no	245*	56^	106	98	74^	119*	175*	55^	178*	69^	92	121	138*	63^
Low GHQ score	114*	86^	102	99	90	105	132*	66^	124*	83^	97	107	101	98
BMI: ideal	78^	135*	105	98	120*	92^	98	104	102	98	103	94	101	98

	Isolation		Time (stress)		Social capital (civic action/participation)		Social capital (satisfaction with area/wallet return likely)		Financial (how getting on)		Easy to get to an outdoor space, leisure centre or community centre for sport or exercise?	
	No	Yes	No	Yes	No	Yes	Not satisfied/likely	Satisfied/likely	Having difficulties	Managing well	Not easy	Easy
5+ portions of fruit/veg per day	91^	114*	103	93	63^	118*	85^	117*	57^	118*	83	102
5+ exercise sessions of 30 minutes or more per week	100	101	94^	113*	104	98	103	97	114	96	77^	103*
Alcohol intake: below recommended	103	96	97	108	99	100	105	95	168*	87^	140*	97^
Smoke nowadays: no	100	99	114*	77^	60^	126*	76^	140*	51^	130*	85	102
Illegal drugs in past 12 months: no	127*	76^	116	78	78	112	72^	167*	55^	133*	232	95
Low GHQ score	147*	65^	111*	81^	92	104	81^	128*	43^	147*	51^	109*
BMI: ideal	86^	123*	98	104	100	100	102	97	101^	100*	89	101

Statistically significant differences (at 95% level) are indicated on the chart: positive differences are indicated by a \*, and negative differences by a ^.

had the recommended amount of fruit and vegetables on the previous day, to be getting the recommended amount of exercise, not to be smoking and not to be taking drugs.

### Segmentation analysis

As noted earlier in this chapter, it was recognised at an early stage that creating an environment segmentation would not be an easy process due to the nature of the inputs. As many of the variables input into the segmentation were binary, a number of different statistical methods were used to run the analysis, but Conversion Cluster Analysis (CCA) was proved to be the most stable at above 80% and explaining more than 30% of the variance.

The initial attempt to validate the hypothesis using all of the dimensions detailed in table 4.2 identified that a five-cluster solution appeared to be the most appropriate and was differentiating well on the key health behaviours (solutions comprising more than five clusters did not appear to explain significantly more variance).<sup>35</sup>

While this initial five-cluster segmentation solution differentiated well on the key health behaviours, there were concerns from the expert advisory group that the solution was overly complicated and included measures that were subjective; the result of this was that it was deemed impractical for day-to-day use by health workers.

In a further attempt to validate the hypothesis, another segmentation was conducted using CCA analysis including only the variables considered non-subjective. These variables are shown in table 4.3.

The resulting solution had stability levels of over 80% and explained more than 50% of the variance. Examination of the cluster efficiencies indicated again that the five-cluster solution appeared to be the best, as later cluster solutions did not appear to explain significantly more variance.

### 4.3.2 Next steps in the environment segmentation

Having identified an environment segmentation solution that differentiated well on the key health behaviours, and whose inputs were not considered subjective, the next proposed step was to combine this segmentation with the motivation segmentation and produce a meta-segmentation.

However, before this step was taken there were several points that needed to be taken into consideration; the motivation segmentation had already been produced and was considered to be very transparent and user-friendly. If the environment segmentation was added to the motivation segmentation, to produce the meta-segmentation, how would the integrity of the motivation segmentation be affected? Would it be possible to create the meta-segmentation without undermining the clarity and integrity of the motivation segmentation?

The key decision point was whether to proceed with a meta-segmentation, or to find a simpler way of segmenting the environment. After reviewing the data, the expert advisory group concluded that a meta-segmentation using the existing environment solution would result in a set of segments that would be difficult to interpret and describe. This in turn would create problems in communicating the findings to the people planning to use the segmentation.

35. Please see appendix 8 for diagnostic analysis.

**Table 4.3: Environment/social circumstances constructs**

Construct	Questions contributing to the construct
IMD score	Derived from postcode data
Issues with area: alcohol, drugs and vandalism	Here are some things that can cause problems for people in their area. Can you tell me which three of these are the most serious problems in your area? Alcohol use, drug dealing and use, and vandalism and deliberate damage to property
Social capital (satisfaction with area/wallet return likelihood)	Thinking in general, how satisfied are you with this area as a place to live?
Social capital (satisfaction with area/wallet return likelihood)	Suppose you lost your (purse/wallet) containing your address details, and it was found in the street by someone living in this neighbourhood. How likely is it that it would be returned to you with nothing missing?
How household gets on financially	Thinking generally, which of the phrases on the card best describes how your household are getting along financially nowadays?
Ease of getting to an outdoor space/leisure centre	From here, how easy it is for you personally to get to an outdoor space, leisure centre or community centre where you could do sport or exercise?

#### 4.4 Simplified approach

An alternative approach was needed to produce a simpler segmentation, and it was suggested that applying IMD to the environment dimension might provide the solution.

IMD is an analysis and data enrichment tool that is widely used in social research and in social marketing. It was thought that this would make a useful alternative to a full environmental segmentation, and it was a tool that practitioners would be familiar with and be able to use easily. It also has the added benefit of requiring only minimal information for use, e.g. only postcode data, which should be available to most practitioners when trying to segment people.

Another strong reason for using IMD as the environment dimension is because other studies have already identified that levels of deprivation are closely correlated with poor health outcomes.

After consideration, the expert advisory group concluded that this simplified approach was the preferred and most practical option.

#### 4.5 Environment solution based on IMD

IMD is made up of seven different dimensions. These dimensions, along with their weighting towards the overall score, are shown below:

- Income deprivation (22.5%);
- Employment deprivation (22.5%);
- Health deprivation and disability (13.5%);
- Education, skills and training deprivation (13.5%);
- Barriers to housing and services (9.3%);
- Crime (9.3%); and
- Living environment deprivation (9.3%).

The key stage in investigating whether IMD would prove to be a sufficiently robust environmental dimension of our overall framework was to establish whether it

differentiated on the key health behaviour measures and, if so, whether any particular aspects of IMD (e.g. income, crime, etc.) differentiated particularly well. Table 4.4 shows the indexed scores for the seven key behaviour targets for each of the IMD variables, split above and below the median, where below the median is less deprived. The scores indicated with a \* show statistically significant (95% level) over-indexing in a particular behaviour compared with the mean, and a ^ shows where there is under-indexing.

As indicated by the large number of \* and ^ marks on the table, IMD acts as a good differentiator for these behaviours. People living in the more affluent areas (below the median) were, on the whole, more likely to be taking part in more positive health behaviours. Therefore, the decision was made to use the IMD score as the basis for the environment dimension.

The next stage was to explore the most meaningful way in which to segment people according to their IMD score. The raw score runs from 1 to 100, which provides too much detail (and complexity) for the purposes of this segmentation. The sample had to be assigned to specific IMD score groups. Two options were investigated: splitting the IMD scores into deciles (i.e. 10 equal bands) and splitting the IMD scores into quintiles (i.e. 5 equal bands).

Table 4.5 shows the differentiation on health behaviours when using deciles and table 4.6 on quintiles. Splitting IMD by quintiles gave the clearest pattern of differentiation on health behaviour, and provided a more manageable number of categories. However, given the importance of people in the lowest IMD groups, and the fact that they are the most likely to have the poorest health outcomes,

the decision was made to split IMD into four quintiles and that the two most deprived deciles should remain separate.

In making the decision to use IMD as the basis of the environment dimension, we acknowledge that there are some inherent problems with its use, in particular:

- IMD was developed based on data from the 2001 census, which is likely to be somewhat out of date. In particular, there have been some changes in levels of deprivation within areas, as some may have been gentrified and others may have become more deprived.
- The lowest level of area analysis enabled by IMD is a census output area, which typically covers around 1,500 households. Although there is a high degree of heterogeneity within output areas, when we look at individual household circumstances within each IMD group, it is clear that there is considerable distribution of household resources (income, poverty, how well members of the household feel they are getting on financially nowadays). This is particularly likely to happen in urban areas, which tend to have more mixed profiles. Examples of variation within each IMD group are included in appendix 9.

**Table 4.4: Indices of Multiple Deprivation split by median and impact on health behaviours**

Indexed scores shown	5+ portions of fruit or veg on previous day	5+ sessions of 30 minutes of exercise per week	Low GHQ	Ideal BMI	Don't smoke nowadays	No Class A drugs in past 12 months	Below recommended alcohol units in past week	Sample size (wtd/unwtd)
IMD Income – below median	125*	92^	124*	103	154*	161*	124*	2,229/1,320
IMD Income – above median	79^	108*	83^	97	71^	72^	79^	2,251/3,160
IMD Employment – below median	126*	91	122*	103	147*	171*	125*	2,239/1,328
IMD Employment – above median	79^	109*	84^	97	73^	70^	78^	2,241/3,152
IMD Health – below median	122^	92^	118*	105	145*	192*	121*	2,227/1,319
IMD Health – above median	81^	108*	86^	95	74^	67^	82^	2,253/3,161
IMD Education – below median	130*	98	106	112*	156*	105	119*	2,231/1,344
IMD Education – above median	76^	102	94	90^	70^	96	83^	2,249/3,136
IMD Housing – below median	100	112*	112*	100	91^	84^	102	2,232/2,248
IMD Housing – above median	100	89^	90^	100	110*	123*	98	2,248/2,232
IMD Crime – below median	120*	99	117*	102	130*	168*	110*	2,214/1,368
IMD Crime – above median	83^	101	87^	98	80^	71^	91^	2,266/3,112
IMD Environment – below median	111*	101	107	96	109*	133*	111*	2,240/1,723
IMD Environment – above median	90^	99	94	104	92^	80^	90^	2,240/2,757
IMD – below median	128*	94^	123*	102	154*	184*	122*	2,240/1,319
IMD – above median	77^	107*	84^	98	71^	68^	81^	2,240/3,161

The scores indicated with \* show statistically significant (95% level) over-indexing in a particular behaviour compared with the mean, and those with ^ show where there is under-indexing.

**Table 4.5: Differentiation of key health behaviours by IMD decile**

Indexed scores shown	5+ Portions of fruit or veg on previous day	5+ sessions of 30 minutes of exercise per week	Low GHQ	Ideal BMI	Don't smoke nowadays	No Class A drugs in past 12 months	Below recommended alcohol units in past week	Sample size (wtd/unwtd)
IMD bottom decile (least deprived)	114*	91	84	112	115*	58	104	448/253
2nd decile	94^	111	116*	86	112*	95	92	448/229
3rd decile	117*	96	117*	119*	71	218*	102	448/336
4th decile	96^	98	108*	106	140*	94	97	448/201
5th decile	83	105	84	82^	85^	142*	107	448/300
6th decile	88	114	105*	93	74	64	144*	448/312
7th decile	51^	107	58^	95	69	41	122	448/263
8th decile	72	155*	56^	94	37^	20^	89^	448/283
9th decile	56^	104	71	107	39^	43	138*	448/333
IMD 10th decile (most deprived)	41^	96	66^	96	31^	45	123	448/1,970

The scores indicated with \* show statistically significant (95% level) over-indexing in a particular behaviour compared with the mean, and those with ^ show where there is under-indexing.

**Table 4.6: Differentiation of key health behaviours by IMD quintile**

Indexed scores shown	5+ portions of fruit or veg on previous day	5+ sessions of 30 minutes of exercise per week	Low GHQ	Ideal BMI	Don't smoke nowadays	No Class A drugs in past 12 months	Below recommended alcohol units in past week	Sample size (wtd/unwtd)
IMD bottom quintile (least deprived)	133*	94	120*	100	175*	132	89	896/482
IMD 2nd quintile	136*	91	138*	114*	148*	242*	91	896/537
IMD 3rd quintile	109	102	115	89^	122*	162*	112	896/612
IMD 4th quintile	78^	121*	70^	96	76^	49	94	896/546
IMD 5th quintile (most deprived)	62^	93	84^	103	54^	81	118*	896/2,303

The scores indicated with \* show statistically significant (95% level) over-indexing in a particular behaviour compared with the mean, and those with ^ show where there is under-indexing.

### 4.6 Interaction between environment and motivation

The Healthy Foundations Lifestage hypothesis suggested that the interaction between motivation and environment would enable accurate segmentation of the population.

Having developed the environment dimension and motivation segmentation, the next stage was to look at the interactions between the two and to assess the best way to deal with the interactions between the dimensions.

Because there are five motivation segments and six IMD groups, this would give 30 potential groups to explore. The distribution of the five motivation segments across the six IMD categories can be found in appendix 9. However, some of these groups were very small, and it was felt that a 30-segment solution would include too many categories to

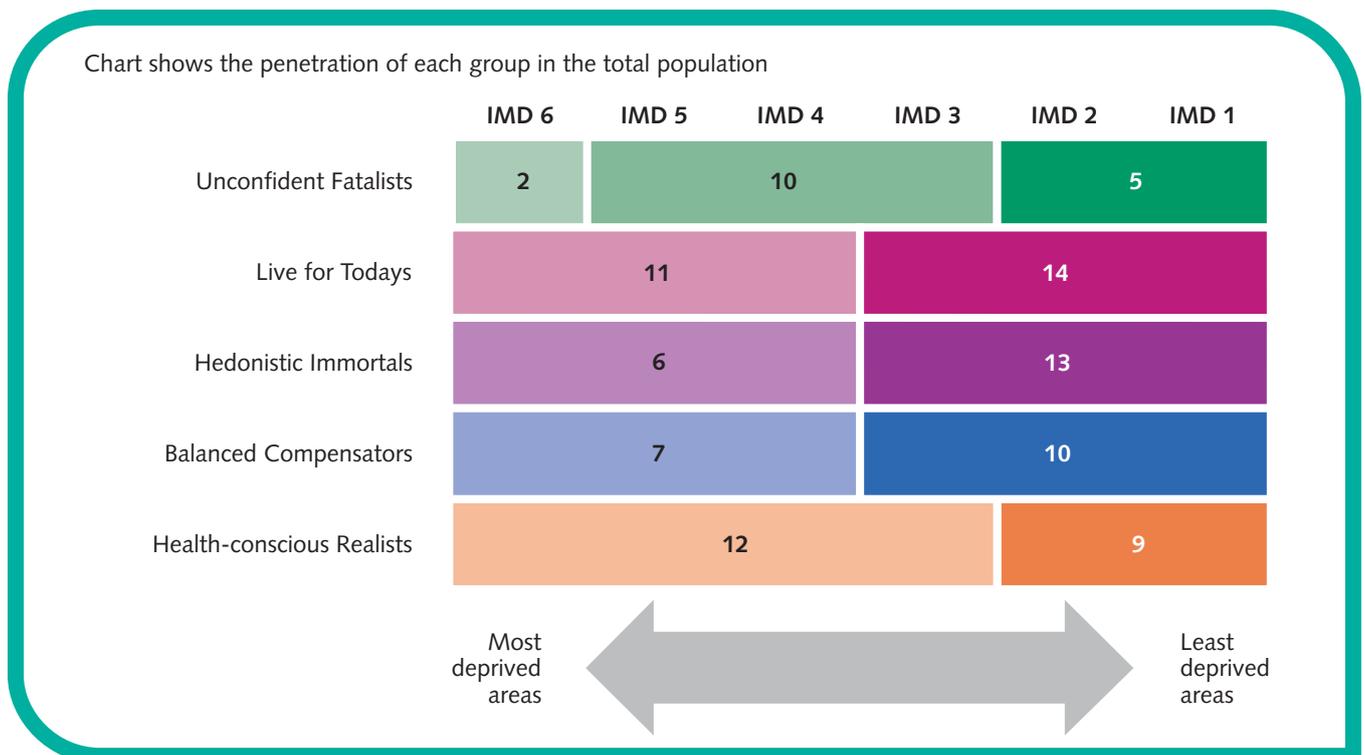
be usable.<sup>36</sup> Instead, hierarchical cluster analysis (HCA) was used to combine the cells in a meaningful way and to maximise differentiation on the key health behaviours. Further details of the analysis undertaken are presented in appendix 10).

Figure 4.1 shows the groupings found to be optimal by HCA analysis, including the penetration of each group in the adult population in England.

The analysis split most of the motivation segments into two groups, with each subgroup containing between 6% and 14% of the population:

- The Live for Today, Hedonistic Immortal and Balanced Compensator segments split at IMD group 3, with IMD groups 1–3 in the 60% least deprived areas and groups 4–6 in the 40% most deprived areas.

**Figure 4.1: Outcome of hierarchical cluster analysis (%)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

36. However, it should be noted that all 30 cells can still be identified for further profiling and analysis if required.

- The Health-conscious Realist segment splits at a higher level: the most deprived part of this segment is in the 60% most deprived areas, and the least deprived part of the segment is in the 40% least deprived areas.

The Unconfident Fatalist segment splits into three groups:

- those in the 40% least deprived areas: 5% of the population;
- those in the 40–90% most deprived areas: 10% of the population; and
- those in the 10% most deprived areas: 2% of the population – while this may be thought of as a very small group for targeting, it comprises 25% of all those in the 10% most deprived areas in the population.

These 11 segments are shown plotted against the environment and motivation dimensions in figure 4.2.

Breaking down the motivation segments by IMD means that the ‘fighters’ and ‘disengaged’ quadrants in the chart have been populated, and this enables us to identify people who are exhibiting positive health motivation despite poorer environments, and those who are exhibiting less positive health motivation even though they live in positive environments.

Table 4.7 shows the health behaviour and states of the motivation segments and compares these against the total sample. The table shows negative health behaviours.

The table shows that, within most motivation segments, those in the most deprived areas tended to show the least positive health behaviours: differences were particularly strong when looking at the proportions consuming fewer than five portions of fruit or vegetables

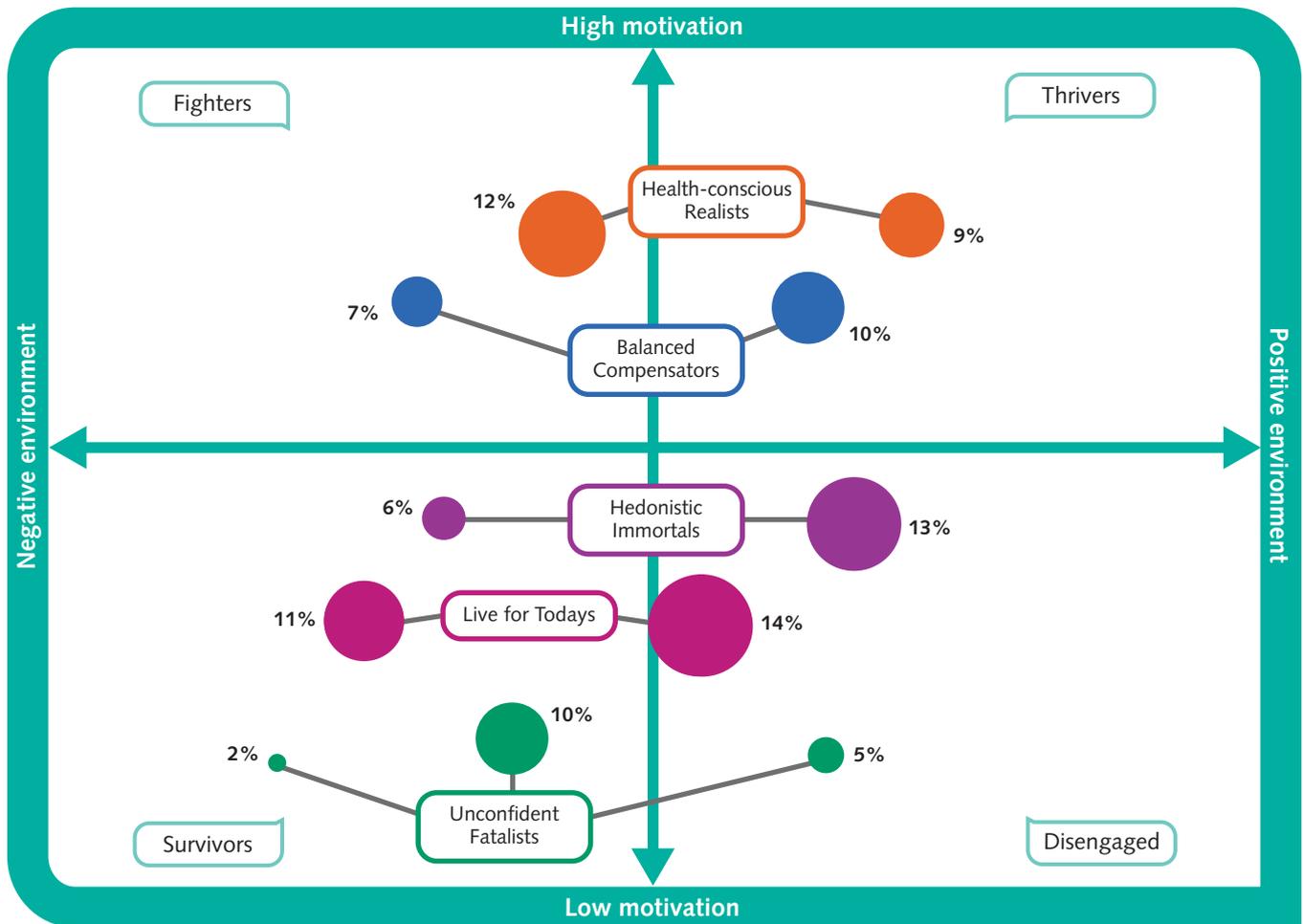
per day, and smoking. For example, within the Hedonistic Immortal segment, there was a 10 percentage point difference in the proportion eating fewer than five portions of fruit or vegetables per day between those in the most and least deprived areas: 60% of Hedonistic Immortals in the most deprived areas ate fewer than five portions per day, compared with 50% of those in the least deprived areas. The largest difference was among the Balanced Compensators, with a 23 percentage point difference in fruit/vegetable consumption between those and the least deprived areas.

There are also particularly large differences in smoking prevalence within each segment based on deprivation: for example, among Health-conscious Realists, those in the most deprived areas (21%) were three times as likely as those in the least deprived areas (7%) to smoke cigarettes nowadays, and there was a 14 percentage point difference in smoking prevalence between those in the Live for Today segment in the most and least deprived areas.

However, this should not be taken as meaning that differences in health behaviour are wholly driven by deprivation, as there are clear differences in health behaviour by motivation segment among people in areas of similar deprivation.

Figure 4.3 shows fruit/vegetable consumption among segment members in the most deprived areas only (note that the two most deprived areas are shown for Unconfident Fatalists). It is clear that, even when looking at consumption among those in similar areas, there are significant differences in levels of fruit/vegetable consumption based on segment. Those in the more motivated segments, such as Health-conscious Realists, Hedonistic Immortals and Balanced Compensators, are more likely to eat five or more portions of fruit/vegetables per

Figure 4.2: Outcome of hierarchical cluster analysis: plotted against dimensions



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

day, and the average number of portions of fruit/vegetables eaten per day is higher among these segments. The lowest levels of consumption of fruit/vegetables are among Unconfident Fatalists in the most deprived areas, who eat an average of 2.7 portions per day.

Similar patterns were observed when looking at smoking prevalence: figure 4.4 shows smoking prevalence among those in the most deprived areas, broken down by motivation segment membership. Those in the most motivated segments were significantly less likely to smoke compared with those in the least motivated segments. The highest smoking

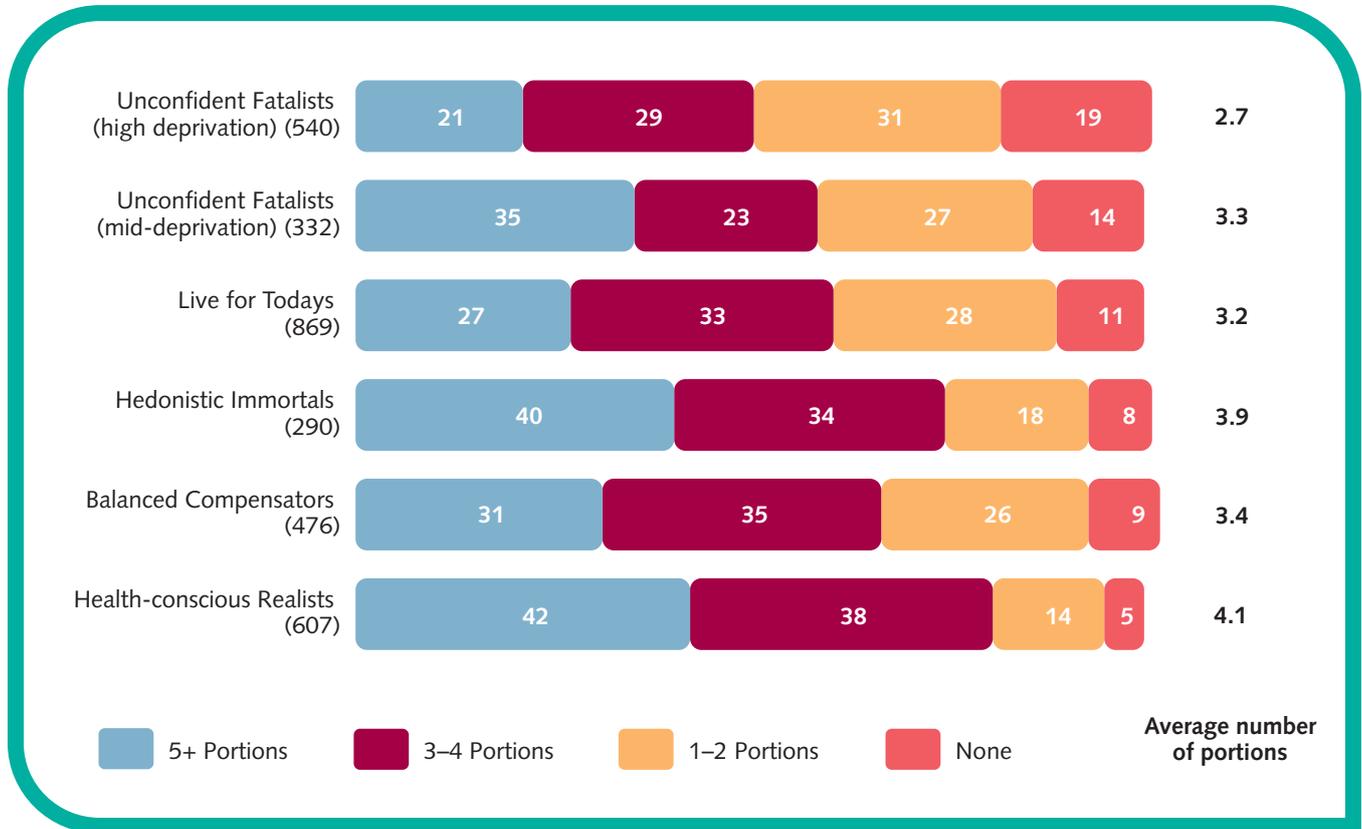
prevalence was among the Unconfident Fatalists in the most deprived areas (47%), but prevalence was also particularly high among the Live for Today segment (40%). Only just over a fifth (21%) of those in the Balanced Compensators or Health-conscious Realists segments in the most deprived areas were current smokers.

Looking across all the health behaviours, the impact of IMD on behaviour was strongest when looking at fruit/vegetable consumption and smoking, and clear differences in these behaviours were noted among all segments when divided by IMD.

Table 4.7: Health behaviour/states of environment/motivation segments showing negative health behaviours

Segment	Total sample	Hedonistic Immortals		Live for Today's		Unconfident Fatalists			Health-conscious Realists		Balanced Compensators	
		Least deprived	Most deprived	Least deprived	Most deprived	Least deprived	Mid-deprived	Most deprived	Least deprived	Most deprived	Least deprived	Most deprived
Base: weighted	<b>4,928</b>	630	281	700	566	258	481	120	455	585	505	347
Unweighted	<b>4,928</b>	329	323	396	1,000	158	347	596	264	672	300	543
Effective sample size	2,496	261	143	307	354	119	252	401	214	340	237	200
Fewer than 5 portions of fruit or vegetables per day (%)	59	50	60	66	73	54	65	79	45	57	46	69
Fewer than 5 sessions of exercise per week (%)	65	66	61	65	62	75	69	72	66	62	61	64
High GHQ (%)	17	12	15	11	18	29	35	43	11	13	14	15
BMI overweight or obese (%)	49	46	39	53	48	49	62	48	50	48	44	40
Smoke cigarettes nowadays (%)	22	15	25	26	40	19	28	47	7	21	11	21
No Class A drugs in previous 12 months (%)	2	2	6	2	3	1	6	4	–	2	3	1
Above recommended alcohol consumption (%)	24	29	26	26	22	24	22	16	27	22	28	17

**Figure 4.3: Daily fruit/vegetable consumption among segment members in the most deprived areas (%)**



Base: Segment members in the most deprived areas

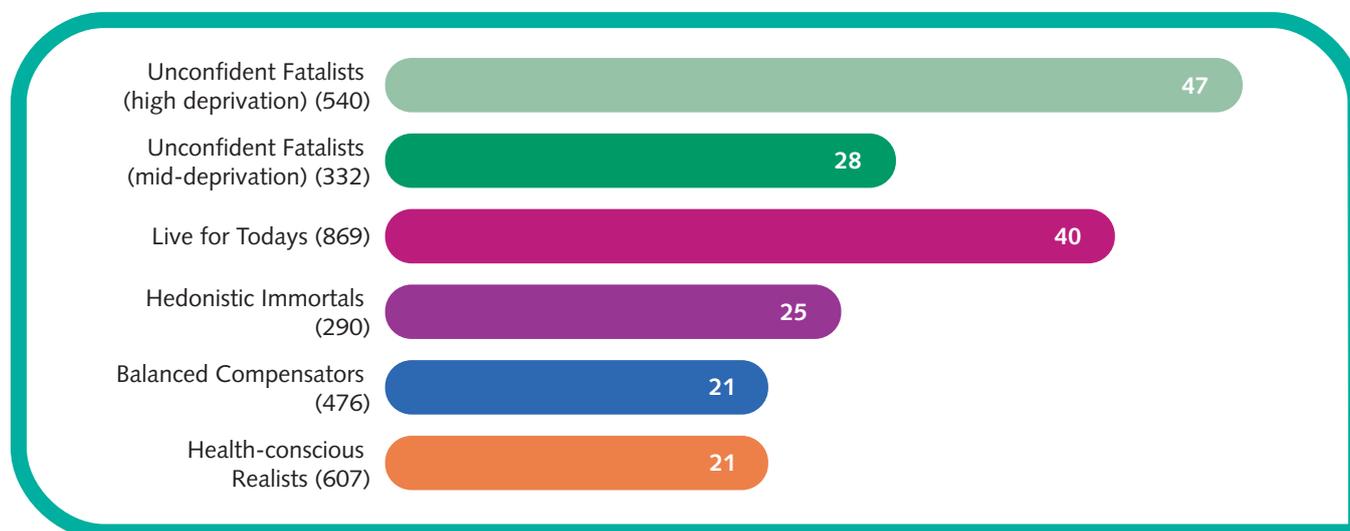
For many other behaviours/health states, the impact of IMD appears to be greater among the least motivated segments: for example, while there is a 14 percentage point difference in the proportion of those with a high GHQ score<sup>37</sup> between those in the most and least deprived areas among the Unconfident Fatalists, the difference was only 2 percentage points among the Health-conscious Realists, and 1 percentage point among the Balanced Compensators (see table 4.7). Similar patterns were observed in relation to BMI, though patterns were less clear when looking at

physical activity, alcohol consumption or drug use.

In addition, CHAID analysis was conducted which aimed to establish the relative impact of IMD, other demographics and motivation on health behaviour. Table 4.8 shows which variables were the basis of first and second-level splits in the CHAID analysis: the first-level split is the best predictor of that behaviour, and the second-level split shows the best predictors of the new groupings formed by the first-level split.

37. The General Health Questionnaire is a tool widely used to assess general well-being and distress. There are several different versions available but the 12-item version is most widely used and was considered to be most appropriate for this survey. Respondents' answers are scored as positive, negative or neutral. If a respondent has up to three negative answers they are classified as having a low GHQ score. If they have four or more negative answers they are classified as having a high GHQ score and this is considered a possible indicator of a mental health condition.

**Figure 4.4: Proportion of current smokers (%) among segment members in the most deprived areas**



Base: Segment members in the most deprived areas

**Table 4.8: CHAID analysis of health behaviours by IMD, demographics and motivation segment membership**

Health behaviour	1st-level split	2nd-level split
Eat at least five portions of fruit/veg per day	IMD	Motivation segment Gender
At least five x 30 minutes of exercise a week	Working status	Motivation segment Gender
BMI	Age	Motivation segment IMD
Smoking	IMD	Motivation segment Ethnicity Presence of partner
Alcohol use	Ethnicity	Gender
Mental health	Motivation segment	Age Working status

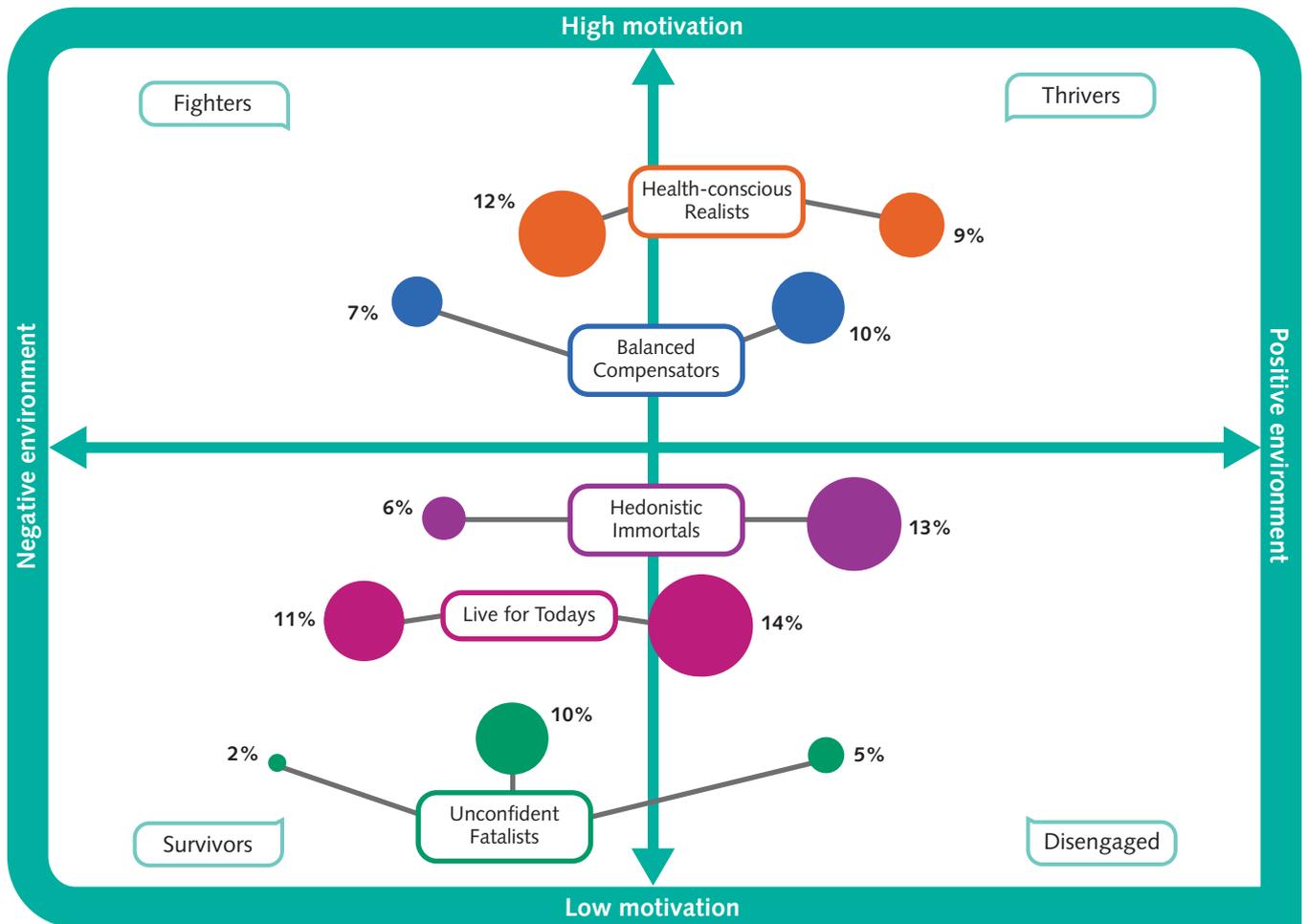
The variable that drove the first-level split varied from behaviour to behaviour, but segment membership came up most consistently as a first or second-level split variable for all health behaviours, with the exception of alcohol consumption. Given that the segmentation aims to look at the person as

a whole, across a range of health behaviours, this implies that the motivation segments do provide further value and insight to enable those with the poorest health behaviours to be targeted.

## 4.7 Summary

- The literature indicates that there are clear correlations between poor environmental and personal circumstances and health issues and health inequalities. Environment may also play a role in influencing people's ability to make changes to their lifestyle to benefit their health. The hypothesis suggested that a knowledge of the interactions between environment and health motivation would enable policymakers to understand the population's health behaviours.
- Initial investigation of the environment dimension explored concepts such as social norms, social capital, household influences, stress and personal financial circumstances. However, detailed analysis indicated that a solution based on IMD was more transparent, and therefore easier to interpret and communicate. In addition, IMD is widely used and easy to replicate nationally and locally, and differentiated well on the key health behaviours and states: in particular, smoking, fruit/vegetable consumption, BMI and mental health.
- IMD was therefore chosen as the basis of the environment dimension, using six groupings: quintiles, but with the most deprived quintile split into two groups, reflecting the focus on health inequalities among the most deprived.
- The five motivation segments were also analysed by environment, with an 11-segment solution maximising differentiation on key health behaviours, which are shown plotted against the motivation and environment axes in figure 4.5. Most of the motivation segments split into two groups, with each group containing between 6% and 14% of the population, although the Unconfident Fatalists segment split into three groups.
- While one group is very small (Unconfident Fatalists in the most deprived areas), it should be noted that although they make up only 2% of the population, they comprise 25% of people in the 10% most deprived areas in the country.
- Breaking down the motivation segments by IMD means that the 'fighters' and 'disengaged' quadrants in the chart have been populated, and this enables us to identify people who have high levels of health motivation in poorer environments, and those who have lower levels even though they live in more positive environments.
- Within most motivation segments, those living in the most deprived areas tended to show the least positive health behaviours: and differences were particularly strong in relation to fruit/vegetable consumption and smoking. However, this should not be taken as suggesting that differences in these health behaviours are wholly driven by deprivation, as there are clear differences among people from different motivation segments in areas of similar deprivation.
- For many other behaviours/states, the impact of IMD appears to be greater among the least motivated segments: where people had higher levels of health motivation, environment appeared to have a lesser impact on their behaviours.

Figure 4.5: Outcome of hierarchical cluster analysis: plotted against dimensions



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

# 5 Lifestage

This chapter gives an overview of how the lifestages were developed and refined.

## 5.1 Hypothesis

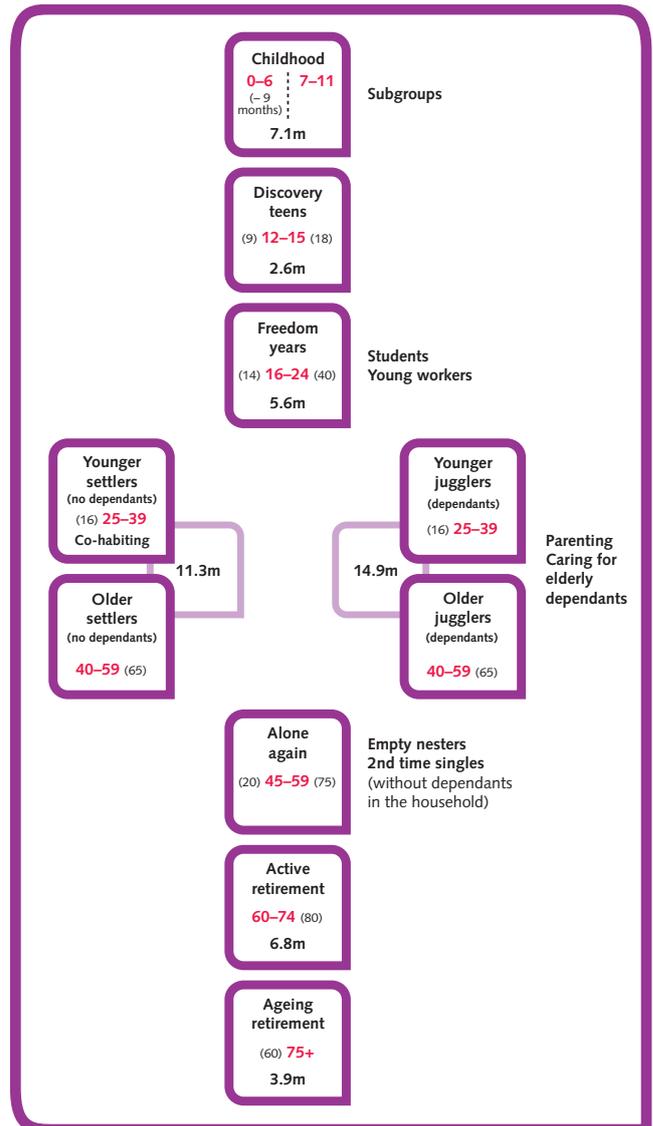
The hypothesis outlined in the introduction section of this report suggested that lifestage may be a key factor influencing health behaviours. The hypothesis suggested a taxonomy of lifestage which could be based on the following elements:

- age;
- presence of children;
- presence of partner;
- having significant caring responsibilities (e.g. for children, relatives, etc.); and
- working status (whether retired or not).

The lifestage hypothesis was further refined based on the analysis of Target Group Index (TGI) data and stakeholder interviews. This hypothesis suggested that lifestage could be divided into 10 groups based on the above taxonomy, and these are shown in figure 5.1. The age ranges for each of the lifestages are indicated on the chart. Please note that the numbers shown in brackets are the suggested minimum and maximum ages for each lifestage. The numbers shown underneath the boxes are the estimated numbers of the population falling into each lifestage.

While the hypothesis identified 10 lifestages, it was not pertinent to consider all of these

Figure 5.1: The hypothesised lifestages



lifestages within the focus of this research. While the health of children under 12 is undoubtedly very important, their health behaviours are likely to be influenced by other factors such as parental influence and lack of decision-making choice, etc. Therefore, it was thought to be more appropriate to consider the health behaviours of under-12s separately.

The Ageing retirement lifestage were also considered likely to have other factors influencing their health behaviours, such as long-term limiting illness and potentially less control over their lifestyle, e.g. living in a care home, etc. Therefore, this group was not included within the remit of the research.

## 5.2 Bivariate description of the lifestages

To produce the lifestages outlined in the hypothesis it was necessary to include certain questions within the survey. These questions were asked at the start of the survey and are detailed in the following list, with their rationale for inclusion and any limitations.

Full technical details on how the lifestages were constructed are in appendix 11.

- **Age** – Almost all (99.9%) respondents opted to provide their actual age. A very small minority (five people) refused and they were asked a follow-up question to try and identify into which age band they fell. The age bands used matched the census data. No respondents refused to give their age at all.
- **Partner in household** – All respondents were asked about their relationship to other household members. Thirteen per cent of respondents lived alone and 62% of respondents stated that another household member was either their spouse, civil partner or their partner. A further 20% of respondents stated that they did not have a partner but there were other people living within the household. The presence of a partner in the household (or lack of) was a key definer for the Freedom years, Younger settlers and Older settlers lifestages.
- **Children in household** – 35% of respondents stated that they had a son/daughter in the household. Our definition of son or daughter also included adopted children, stepchildren and foster-children. Anyone who was the parent of a child in their household was categorised as a juggler unless they had retired.
- **Caring responsibility** – The juggling lifestages are classified as having dependants, which could also include having significant caring responsibilities. To understand whether people had caring responsibilities we asked all respondents whether they looked after, or gave any unpaid help or support to, family members, friends, neighbours or other people. Eighty-six per cent of people stated that they did not have caring responsibilities and 14% stated that they had at least some caring responsibilities.  
  
The people who had some level of caring responsibility were asked how many hours per week they spent caring. Nine per cent of all people interviewed stated that they spent five hours or more per week giving unpaid help, and therefore were classified as having significant caring responsibilities. All those with significant caring responsibilities of five hours or more per week caring for others were also classified as jugglers.
- **Working status** – All respondents were asked about their current working status using the standard quarterly government Labour Force Survey question. Sixty-six per cent of people interviewed were in employment, 21% were not in employment (for reasons such as education, looking after the home, sickness, etc.) and 13% had retired. All respondents who classified themselves as retired were included in the Active retirement lifestage.

- **Previous partners and children outside of the household** – The Alone again lifestage is important because it was hypothesised that this group's health behaviour may be quite different from people in a family environment. They have fewer caring responsibilities and may have a more active social life. This lifestage is defined as having no current partner or children in the household, but previously having either lived with a partner or had children. Understandably, questions on this subject are potentially very sensitive and therefore questions were asked as part of the self-completion section in the interview.

### 5.2.1 Proportion of respondents in each lifestage

Using the proposed lifestages, respondents were classified according to the taxonomy and the proportions falling into each lifestage are shown in table 5.1. The largest lifestage was the Younger juggler category (25%), while the Alone again and settler categories were the smallest groups (9%). It is worth noting that respondents are classified on their current

lifestage, i.e. someone might previously have been a juggler (e.g. had children in their household), but due to the breakdown of the old relationship and the start of a new relationship they are now a settler (i.e. with a partner but no children in their household).

Two per cent of the total sample were not classified into a lifestage due to lack of information, where respondents preferred not to answer questions needed for clarification. The majority of respondents who were not assigned to a lifestage refused to answer the questions relating to previous partners and whether they had ever had children.

### 5.3 Refining the lifestages

The following section describes how the lifestages were validated and refined further.

#### 5.3.1 The suggested lifestages

The initial stage of the validation process was to identify whether the suggested lifestages provided good differentiation on the key health behaviours.

**Table 5.1: Proportion of sample (%) in each lifestage**

Lifestage	Proportion of sample
Freedom years (never lived with a partner and never had any children)	16
Younger settlers (aged under 45, living with partner, no children in the household and no caring responsibilities)	9
Older settlers (aged 45 or over, living with partner, no children in the household and no caring responsibilities)	9
Younger jugglers (aged under 45, either have children in the household or significant caring responsibilities)	25
Older jugglers (aged 45 or over, either have children in the household or significant caring responsibilities)	16
Alone again (previously lived with a partner or had children but don't currently have a partner or children in the household)	9
Active retirement (all retired)	13
Unable to classify	2

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

In order to investigate this, indexed scores were produced for health behaviours for each of the lifestages. The index scores show how different the result is from the average of other respondents not in that lifestage. For example, where 100 is the average, a score of 105 is above average and a score of 95 is below average.

Table 5.2 illustrates how the lifestages differentiate on health behaviours. Please note that all of these health behaviours are positive, e.g. not smoking, drinking within the recommended guidelines, etc.

As shown by the large number of \* and ^ symbols in the table, the lifestages appear to be differentiating well across the life behaviours in the direction expected. Respondents in the younger lifestages were significantly more likely to be active and to have ideal BMI scores, as hypothesised. Respondents who had caring responsibilities were more likely to have

positive health behaviours compared with their peers who did not have caring responsibilities.

### 5.3.2 CHAID analysis

While the initial lifestages appeared to be differentiating well, the next stage of refinement involved CHAID analysis to investigate the key drivers of individual health behaviours. The demographic questions used to construct the lifestages were included in the CHAID analysis.

It was not possible to do one overall CHAID analysis, as the literature has already established that different factors impact in different ways on the various health behaviours.

As shown in table 5.3, key drivers were age and working status. These were closely followed by the presence of a partner in the household and presence of children in the household.

**Table 5.2: Lifestage and impact on health behaviours/health state**

Indexed scores	Freedom years (716)	Younger settlers (379)	Older settlers (381)	Younger jugglers (1,245)	Older jugglers (565)	Alone again (637)	Active retirement (909)
5+ portions of fruit/veg per day	83^	87^	116*	92^	117*	96	122*
5 or more sessions of 30 minutes or more of exercise per week	105	93	107*	111*	98	99	78^
Not smoking	98	104	104	95	107*	78^	111*
Drinking alcohol within guidelines	96	99	96	105	102	94^	100
Low GHQ score	99	100	109*	99	99	94^	103
BMI: ideal	133*	120*	76^	114*	72^	103	71^
No Class A drugs in past 12 months	99	98	103	99	102	94^	103

The scores indicated with \* show statistically significant (95% level) over-indexing in a particular lifestage compared with the mean, and those with ^ show where there is under-indexing.

**Table 5.3: Key drivers of health behaviours**

Health behaviour	1st split	2nd split	3rd split
Eating five portions of fruit or vegetables per day	Working status	Partner	Age
Completing five sessions of 30 mins exercise per week	Working status	Children in household	Children out of household
Not smoking	Working status	Partner	n/a
Drinking alcohol within guidelines	Working status	Partner	n/a
Low GHQ Score	Working status	Partner	n/a
Ideal BMI	Age	Working status	Children in household
No illegal drugs in past 12 months	Age	Children in household	n/a

The initial findings from the CHAID analysis suggested that the most appropriate constructs were included in the lifestages. However, the presence of working status, age and presence of a partner needed to be investigated further. Further profiling was carried out by splitting the existing lifestages by these variables and examining whether they further differentiated on health behaviours.

### Working status

Based on the lifestage definitions, working status was used as a key definer for the Active retirement lifestages only. The findings from the CHAID analysis indicated that further analysis was needed to identify whether splitting the other lifestages by working status would further differentiate on health behaviours.

Each of the lifestages was split by working status, and indexed scores were produced for each of the health behaviours. Examination of differentiation on behaviours indicated that for most segments, little additional differentiation was evident when splitting in this way. In addition, there were concerns about sample sizes for some 'split' lifestages and therefore

we did not attempt to split all lifestages in this way (see table 5.4).

The Freedom years lifestage appeared to divide well both by working status and age (discussed more fully in the next section). Given that other lifestage definitions were defined on age, it was more appropriate to split the Freedom years lifestage into two sub-lifestages (under 25 and 25 plus), rather than split by working status.

### Age

Several of the original lifestages had parameters that included age (e.g. Active retired, Older and Younger jugglers and settlers), but several of the lifestages did not have any age boundaries. For example, someone of 55 or over could still fall into the Freedom years category if they currently didn't have a partner or children and had never had a partner or children. Similarly, a 19-year-old could fall into the Alone again lifestage if they had previously had a partner but didn't have one currently. For these reasons it was appropriate to investigate whether further splitting lifestage by age would differentiate on health behaviours.

**Table 5.4: Lifestages split by working status for key health behaviours/health state**

Indexed against rest of subsample	5+ portions of fruit or veg per day	5+ sessions of 30 minutes of exercise per week	Low GHQ	Ideal BMI	Don't smoke nowadays	No Class A drugs in past 12 months	Below recommended alcohol consumption	Sample size (wtd/unwtd)
Freedom years – under 25 working	107	147*	94	185*	80	57	58^	231/115
Freedom years – under 25 not working	59^	107	117	294*	152*	58^	86	290/204
Younger jugglers – under 45 working	70^	127*	73^	175*	68^	62	106	284/256
Younger jugglers – under 45 not working	54^	83	67^	132	52^	105	59^	162/316
Younger jugglers – 45 and over working	109	133*	157*	105	111	88	100	550/367
Younger jugglers – 45 and over not working	101	85	49^	119	93	174	73	113/163
Older jugglers – working	144*	94	114	61^	138*	623*	136*	590/357
Older jugglers – not working	89	120	47^	48^	71	2,848	88	121/151

The scores indicated with \* show statistically significant (95% level) over-indexing in a particular lifestage compared with the mean, and those with ^ show where there is under-indexing.

For the majority of lifestages, splitting by age added no additional differentiation on health behaviours. The only group that showed differentiation was Freedom years. Table 5.5 shows the indexed scores against the overall average (100) for Freedom years split above and below 25 years of age. As expected, respondents in the younger group were more likely to take regular exercise and to have an ideal BMI.

### Presence of partner

Presence of partner (or lack of) featured as a key indicator for the majority of the lifestages; however, partner status was not included in active retirement. Previous studies have found that having a partner in later life can have an impact on health outcomes, particularly mental health outcomes,<sup>38</sup> so it was appropriate to investigate whether respondents in the active retirement group had different health

38. C. Actor, A. Bowling, J. Bond and S. Scambler, *Loneliness, social isolation and living alone in later life*, Economic and Social Research Council, 2002.

**Table 5.5: Impact of splitting Freedom years by age on health behaviours**

Health behaviour	Freedom years 16–24 (357)	Freedom years 25+ (359)
Five or more portions of fruit/veg per day	77 <sup>^</sup>	63 <sup>^</sup>
Five or more sessions of 30 mins exercise per week	123 <sup>*</sup>	75 <sup>^</sup>
Don't smoke	111	78
Drink alcohol within guidelines	73 <sup>^</sup>	103
No class A drugs in previous 12 months	57 <sup>^</sup>	131
Low GHQ score	105	75 <sup>^</sup>
Ideal BMI	236 <sup>*</sup>	97

The scores indicated with \* show statistically significant (95% level) over-indexing in a particular lifestage compared with the mean, and those with <sup>^</sup> show where there is under-indexing.

behaviours depending on whether they had a partner or not.

Table 5.6 demonstrates that there are different health behaviour outcomes for those with a partner, and generally these are more positive health behaviours, with the exceptions of exercise and BMI.

### 5.3.3 Revised lifestages

The initial lifestages differentiated well in health behaviours, but the CHAID analysis suggested

there were additional factors to take into consideration, i.e. age, working status and partner in household. Having examined the impact that these factors had on health behaviour outcomes, the overall lifestages were refined so that the Freedom year group was split by those above and below the age of 25, and the Active retirement group was split on whether they had a partner or not. Table 5.7 shows the proportion of respondents falling into each lifestage.

**Table 5.6: Indexed health behaviours for Active retirement with/without partner**

Health behaviour	Without partner (429)	With partner (480)
Five or more portions of fruit/veg per day	128	148 <sup>*</sup>
Five or more sessions of 30 mins exercise per week	71 <sup>^</sup>	68 <sup>^</sup>
Don't smoke	105	326 <sup>*</sup>
Drink alcohol within guidelines	73	122
No Class A drugs in previous 12 months	4,786 <sup>*</sup>	3,983 <sup>*</sup>
Low GHQ score	96	132 <sup>*</sup>
Ideal BMI	65 <sup>^</sup>	53 <sup>^</sup>

The scores indicated with \* show statistically significant (95% level) over-indexing in a particular lifestage compared with the mean, and those with <sup>^</sup> show where there is under-indexing.

**Table 5.7: Proportion of sample (%) in each lifestage**

Lifestage	Proportion of sample
Freedom years under 25	11
Freedom years over 25	5
Younger settlers	9
Older settlers	9
Younger jugglers	25
Older jugglers	16
Alone again	9
Active retirement with partner	9
Active retirement without partner	4
Not stated	2

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

## 5.4 Profile of the lifestages

The following section profiles the lifestages by key demographics.

### 5.4.1 Age

Table 5.8 shows how lifestage varies by age (please note that blank cells denote a 0

percentage). While the majority of 16–17-year-olds (91%) are classified as being in the Freedom years under-25 lifestage, a small proportion (9%) have children or other caring responsibilities and are therefore classified as Younger jugglers. There are diverse spreads of lifestages through each age group, though it is interesting to note that the Alone again

**Table 5.8: Lifestage by age (%)**

	Age						
	16–17	18–24	25–34	35–44	45–54	55–64	65–74
Freedom years under 25	91	63					
Freedom years 25 and over			18	5	5	4	1
Younger settlers		10	25	14			
Older settlers					15	38	
Younger jugglers	9	16	43	72			
Older jugglers					69	23	
Alone again		9	13	8	9	10	3
Active retirement with partner					1	16	55
Active retirement without partner						8	28
Unable to classify		1	1		1		13

lifestage is spread through all age groups, with the exception of 16–17-year-olds.

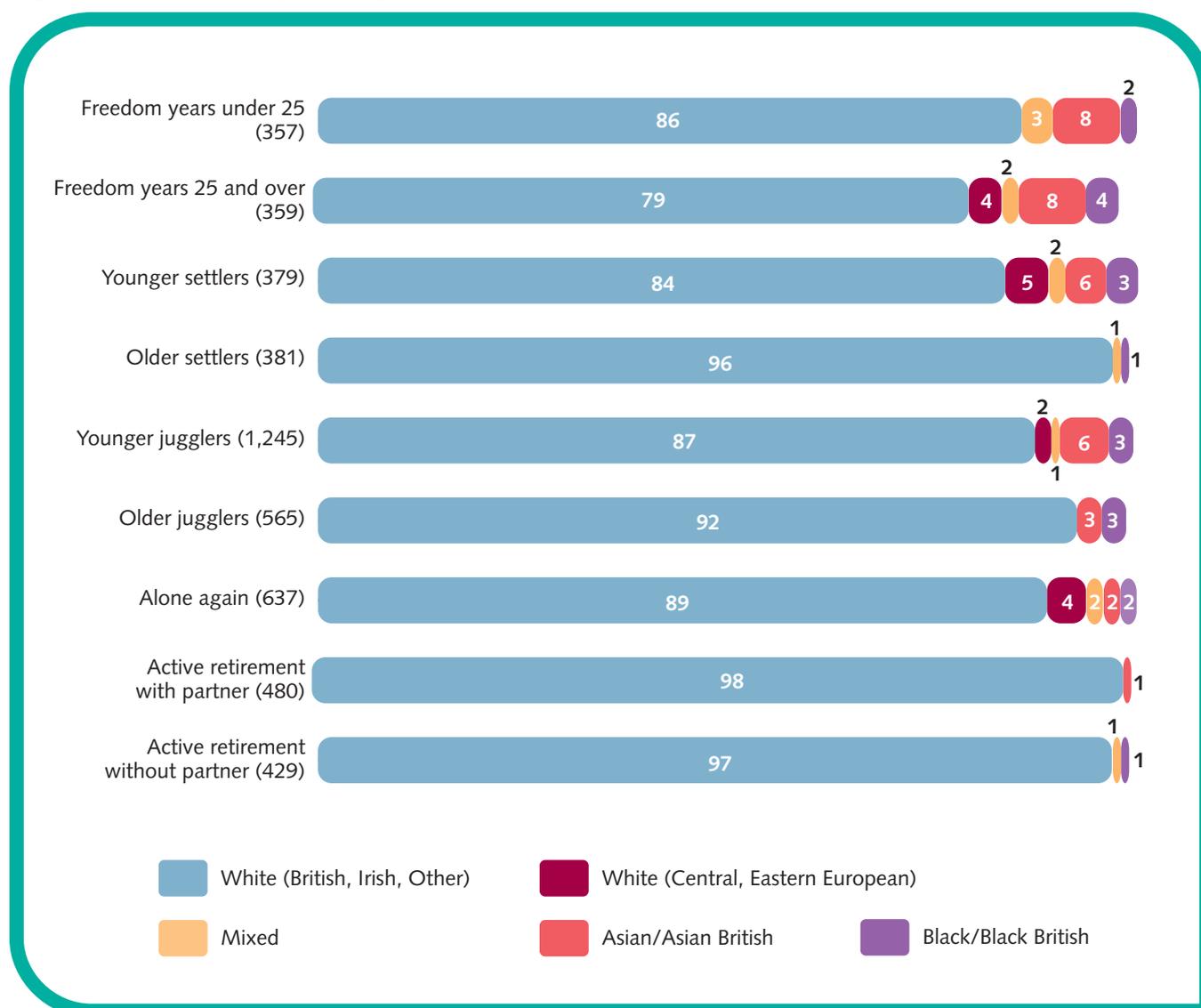
### 5.4.2 Ethnicity

All respondents were asked to which ethnic group they considered themselves to belong. Around nine in ten respondents (89%) classified themselves as White – British, Irish or Other (hereafter referred to as White), and a further 2% of respondents classified themselves as White Central or Eastern

European. For the purposes of this research, respondents from a White Central or Eastern European background have been analysed separately from White British as there is evidence to suggest there are differences in health behaviours between these two groups.<sup>39</sup>

In line with the census data the largest ethnic minority group was Asian/Asian British (4%), followed by Black/Black British (2%) and 1% of people classified themselves as coming from a mixed ethnic minority background.

Figure 5.2: Ethnicity by lifestage (%) (QM1)



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

39. A. Steptoe and J. Wardle, Health behaviour, risk awareness and emotional well-being in students from Eastern Europe and Western Europe, *Social Science and Medicine*, 53 (12), pp. 1621–30.

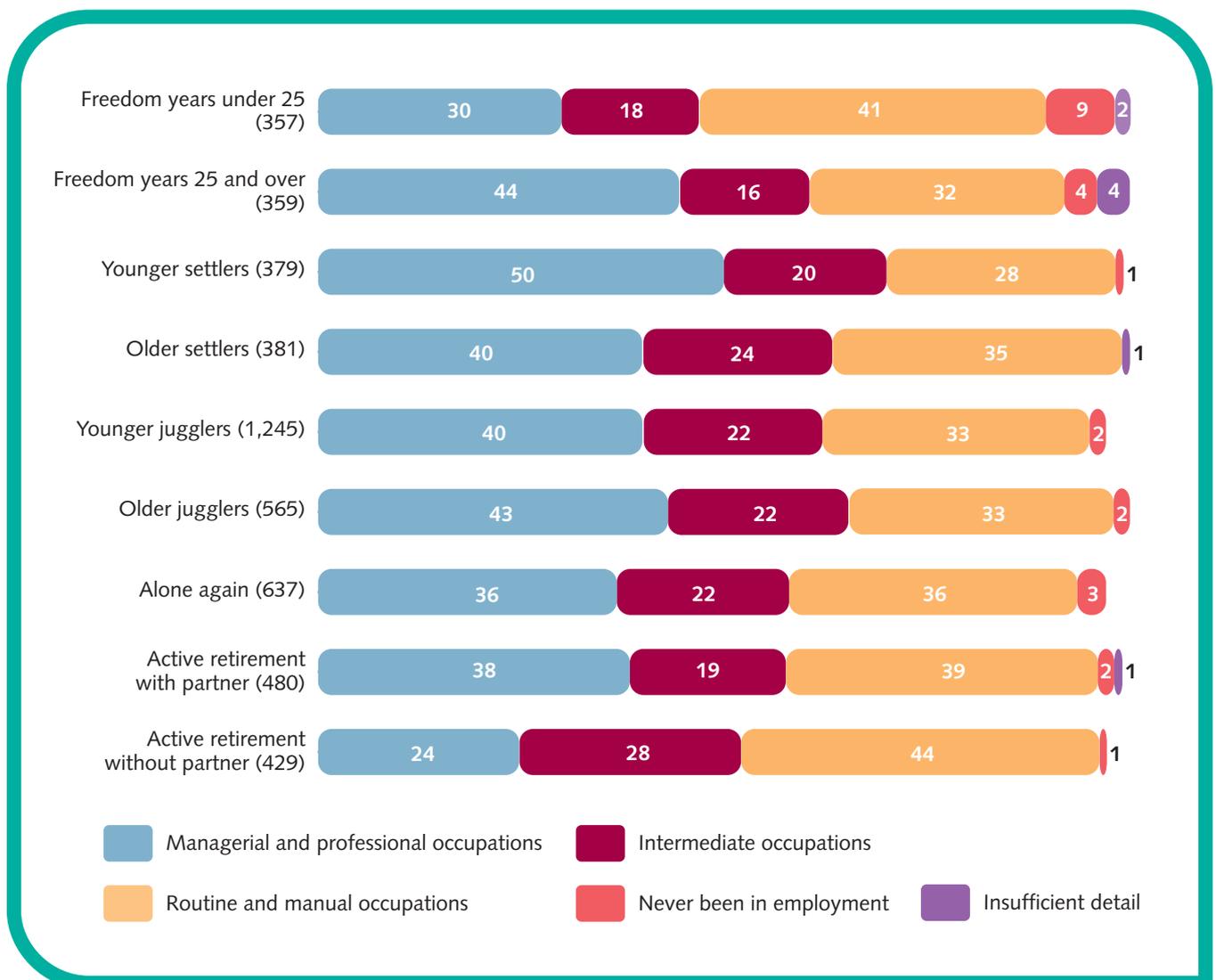
Respondents from the younger lifestages were significantly more likely to come from an ethnic minority background (see figure 5.2). One in five respondents (18%) in the Freedom years (aged 25+) classified themselves as coming from an ethnic minority background, followed by 16% of Younger settlers and 13% of Freedom years (aged under 25). Respondents who were in Active retirement were the least likely to be from an ethnic minority background (1% with a partner, 2% without a partner).

### 5.4.3 National Statistics Socio-Economic Classification

The National Statistics Socio-Economic Classification (NS-SEC) is the primary social classification system in the United Kingdom. It replaced social class based on occupation and socio-economic groups (SEGs), and is used for all official statistics and surveys.

NS-SEC is classified using information collected about occupation (or previous occupation for retired respondents), and there are rules to provide coverage for the whole adult

**Figure 5.3: NS-SEC (3-level) by lifestage (%)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

population. There are various levels of NS-SEC, but for this study the data were classified using 8-level and 3-level NS-SEC.

Table 5.9 shows the proportion of the sample falling into each of the different occupation types using NS-SEC 3-level classification. Please note that the table also shows the proportion of people who have never been in paid employment and those where there was insufficient detail to code to NS-SEC. Two-fifths of the sample (39%) were in managerial and professional occupations and a further fifth (21%) were in intermediate occupations. Around a third of respondents (35%) were in routine and manual occupations and fewer than one in twenty (3%) had never been in paid employment.

Figure 5.3 shows there was a wide range of occupation types across all of the lifestages. Respondents in the Younger settler lifestage were the most likely to be classified as working in managerial and professional occupations (50%), and respondents in Active retirement without a partner were the most likely to have been working in routine and manual occupations (44%). Respondents in the freedom years under-25 lifestage were the most likely to state that they had never been in employment (9%), but a third of these respondents were still in full-time education.

**Table 5.9: NS-SEC (3-level) classification**

NS-SEC classification	Proportion of sample (%)
Managerial and professional occupations	39
Intermediate occupations	21
Routine and manual occupations	35
Never been in paid employment	3
Insufficient detail	1

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

#### 5.4.4 Qualifications

All respondents were asked about their highest level of qualifications. While almost three in ten respondents (29%) were educated to degree level or above, almost one in five respondents (18%) held no qualifications at all (see table 5.10).

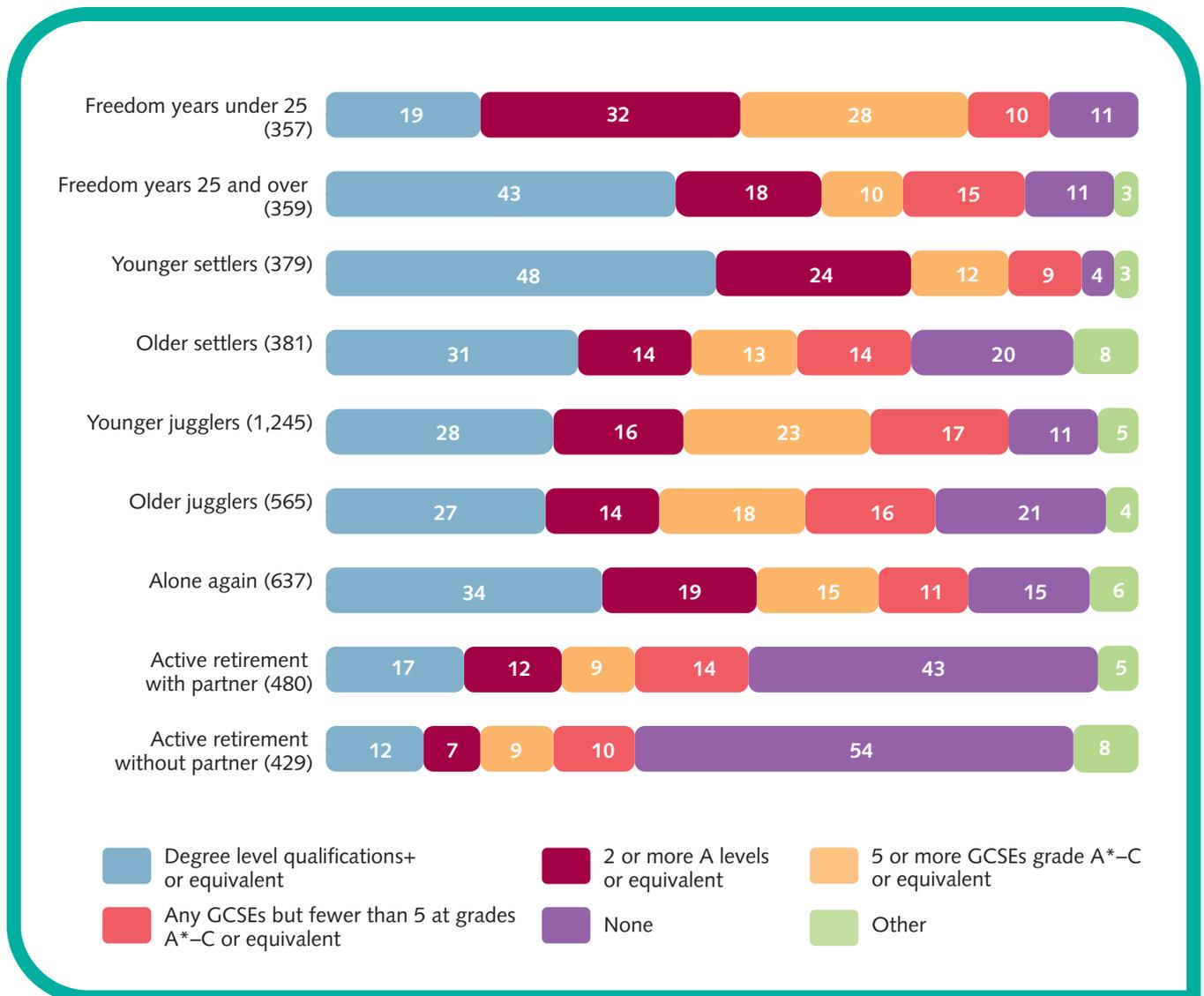
**Table 5.10: Highest level of qualification (QM9)**

Name of qualification	Proportion of sample (%)
Degree level or above	29
2+ A-levels or equivalent	18
5+ GCSEs grades A–C or equivalent	17
Fewer than 5 GCSEs (any grade) or equivalent	14
Other type of qualification	2
No educational qualifications	18
Don't know	1

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

Respondents in the Younger settler lifestage were the most likely to be educated to at least degree level (48%), followed by respondents in Freedom years 25 and over (43%) and respondents in the Alone again group (34%).

**Figure 5.4: Highest level of qualifications by lifestage (%) (QM9)**



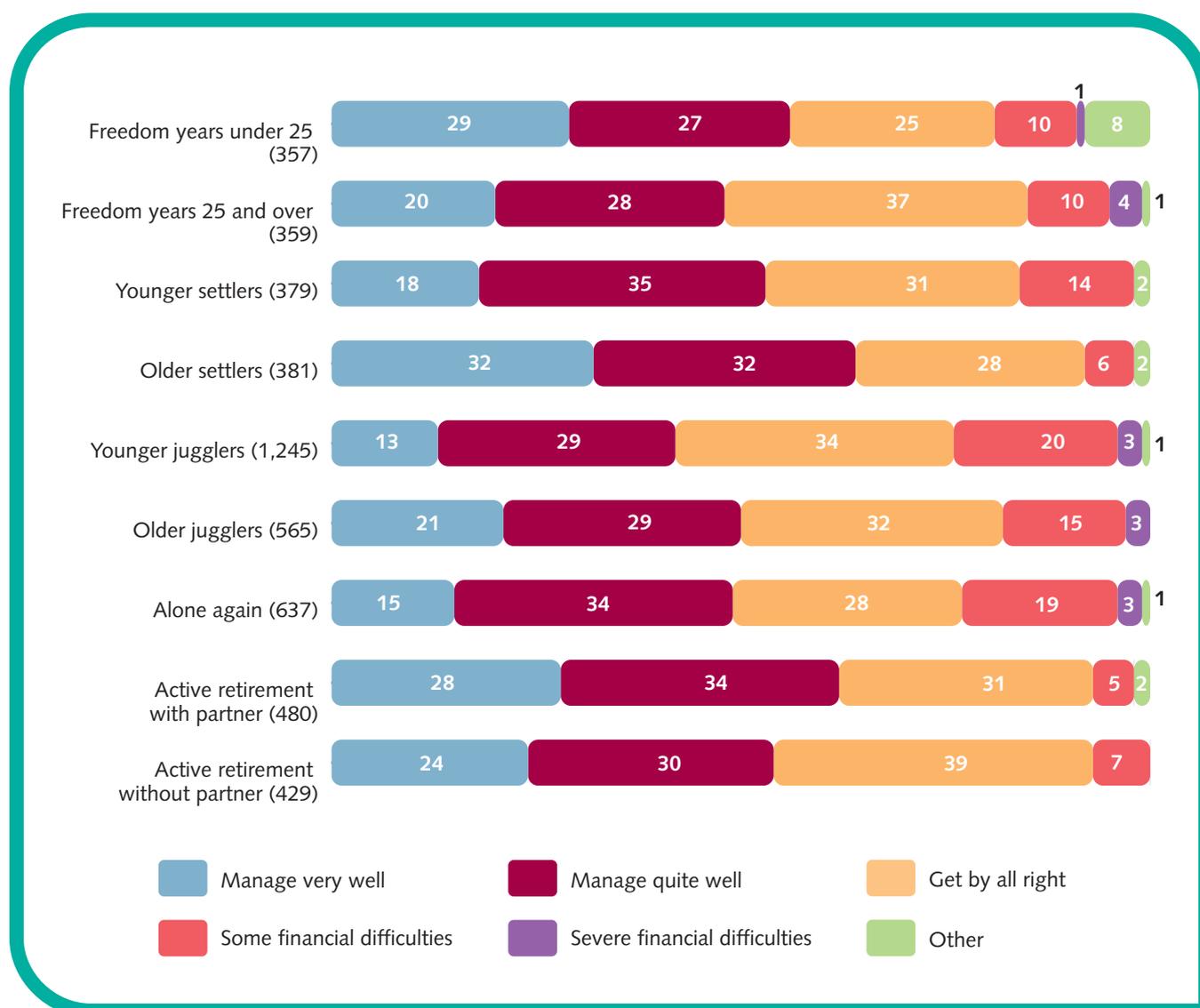
Base: all respondents (unwtd 4,928/wtd 4,928/ess 2,496)

Respondents in the older lifestages were the least likely to hold any qualifications. Figure 5.4 shows that over half of respondents in Active retirement without a partner (54%) and two-fifths (43%) of those in Active retirement with a partner held no qualifications. A fifth of Older jugglers (21%) and Older settlers (20%) held no qualifications.

### 5.4.5 Financial situation

All respondents were asked to rate how they felt their household was getting by financially nowadays. Responses were given via a five-point scale, ranging from managing very well to in severe financial difficulties. This question originated from the English Longitudinal Study of Ageing. Around half (52%) of respondents considered themselves to be managing very well/quite well, but 16% reported having at least some level of financial difficulty (either some difficulties or severe difficulties).

**Figure 5.5: Getting by financially by lifestage (%) (QL3)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

Figure 5.5 shows the results by lifestage and financial situation. Respondents in the Older settler lifestage were the most likely to be getting by very well (32%), followed by respondents in the Freedom years under-25 lifestage (29%) and Active retirement with partner (28%).

Almost a quarter (23%) of respondents in the Younger juggler lifestage and a similar proportion of respondents in the Alone again

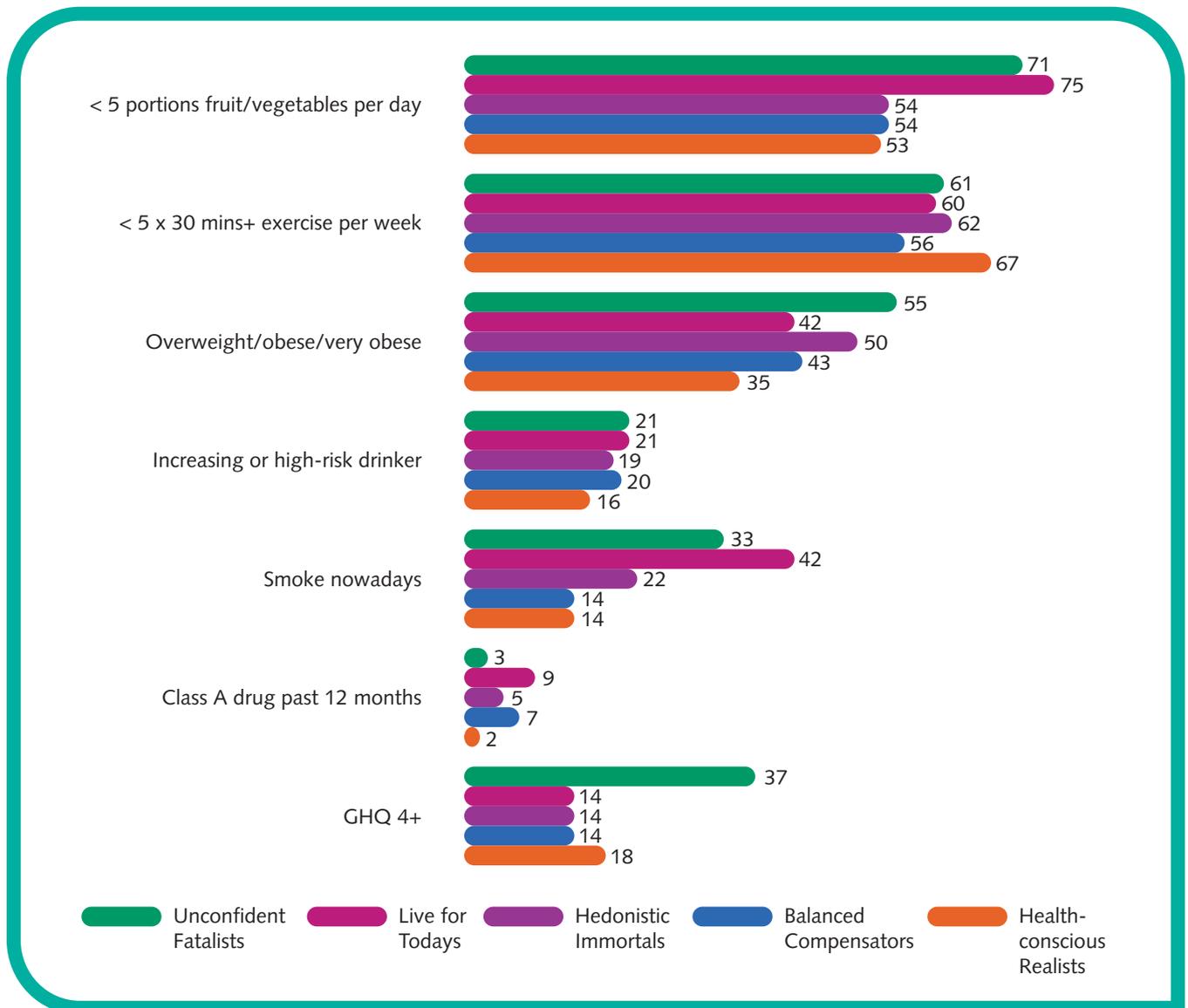
lifestage (22%) reported at least some level of financial difficulty.

#### 5.4.6 Region

Regional analysis was based on strategic health authority (SHA) areas for this study. The distribution of the achieved sample was proportionate to the overall population density of the various SHAs within England.<sup>40</sup>

40. Based on the 2001 census information.

**Figure 5.6: Health behaviours within Younger jugglers lifestage, by motivation segment (%)**



Base: All Younger jugglers (unwtd 1,245/wtd 1,249/ess 600)

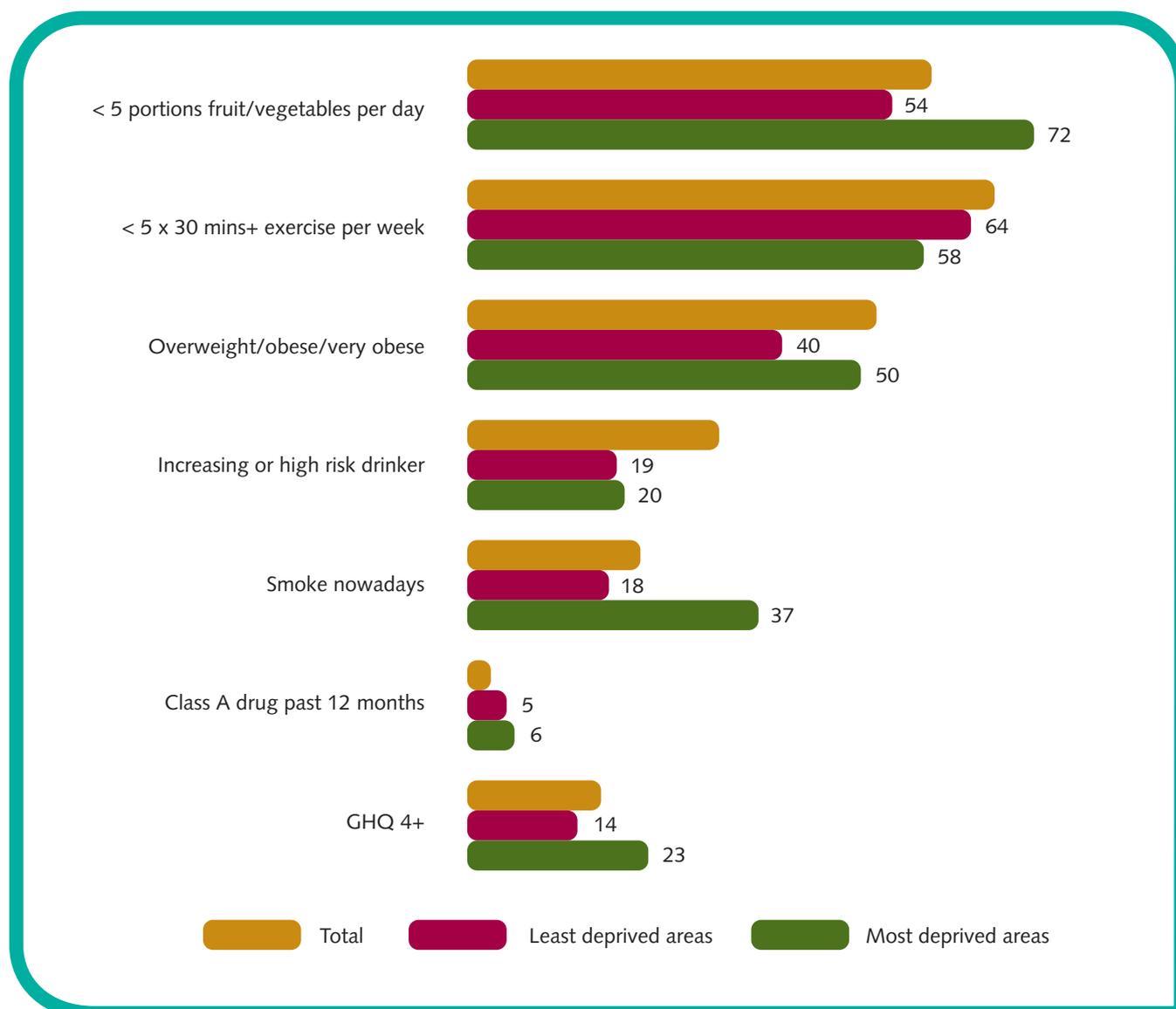
While many of the SHAs appeared to have relatively equal population distribution across the lifestages, there were several authorities that had disproportionately large numbers of people falling into certain lifestages. For example, London had the highest proportion of people falling into the Freedom years 25+ (11%) and Alone again categories (14%). The North East had a high proportion of Older settlers (20%) and those in the retired lifestages (24%).

### 5.5 Interaction between lifestage and other dimensions

The Healthy Foundations Lifestage hypothesis suggested that lifestage would provide a further tool to enable population segmentation, and would interact with the other dimensions to enable understanding of behaviours.

Analysis of segment within lifestage and Indices of Multiple Deprivation (IMD) within lifestage suggests that negative health

**Figure 5.7: Health behaviours within Younger jugglers, by deprivation (%)**



Base: All Younger jugglers (unwtd 1,245/wtd 1,249/ess 600)

behaviours can be further targeted. For example, Unconfident Fatalists in the Younger juggler lifestage were more likely (75%) than the average for Younger jugglers (62%) or for Unconfident Fatalists (63%) to have eaten fewer than five portions of fruit/vegetables per day.

Figure 5.6 shows how health behaviour breaks down by segment within the Younger jugglers lifestage. In general, the patterns of health behaviour are similar to those seen within the

segment on average, but by nesting segments and lifestage some particular extremes of behaviour are uncovered:

- Smoking prevalence is particularly high among those in the Live for Today segment within Younger jugglers (42% compared with 32% of all of those in the Live for Today segment and 25% of all Younger jugglers).

- Prevalence of a high GHQ (which may indicate mental health problems) was also high among Unconfident Fatalists in the Younger jugglers segment: 37%, compared with 35% of all Unconfident Fatalists and 19% of all Younger jugglers.

Analysing by deprivation within the Younger jugglers lifestage also provides additional insight, with Younger jugglers in more deprived areas more likely than their counterparts in less deprived areas to eat fewer than five portions of fruit/vegetables per day, to smoke, to have a high BMI and to have a GHQ that might indicate mental health problems (see figure 5.7).

Further analysis is limited only by available sample size, as the number of respondents in some of the lifestages is quite small.

## 5.6 Summary

- The hypothesis suggested that lifestage may be a key factor influencing health behaviours. The hypothesis suggested a taxonomy of lifestage that could be based on age, presence of a partner, presence of children, caring responsibilities and working status (whether retired or not).
- Further analysis refined the lifestages with a view to maximising the extent to which they differentiate on key health behaviours. The main refinements were as follows:
  - The Freedom years lifestage comprised those who had never lived with a partner and never had children. While the hypothesis did not suggest that this lifestage be split by age, there were clear differences in health behaviours between those in this lifestage aged 16–24 compared with those aged 25+: in particular in relation to physical activity, smoking, alcohol consumption and drug use. The lifestage was therefore split into two: Freedom years 16–24 and Freedom years 25+.
  - The Active retirement lifestage comprised those who had retired from paid work. Within this group, presence of a partner featured as a key indicator of health behaviour in relation to fruit/vegetable consumption, smoking, GHQ and BMI. The decision was therefore taken to split this lifestage into two: Active retirement with partner and Active retirement with no partner.
- This led to a lifestage solution featuring nine categories, as shown in table 5.11.
- In addition to more 'traditional' lifestages, such as settlers and jugglers, the hypothesis also suggested the presence of a new lifestage called Alone agains: these are people who have previously lived with a partner or had children but no longer do. The Alone agains comprise just under one in ten (9%) of the adult population. This group is of particular interest because of their behaviours, as they are the lifestage most likely to smoke, be hazardous or higher-risk drinkers, and to have taken any Class A drugs in the previous 12 months.

**Table 5.11: Proportion of sample (%) in each lifestage**

Lifestage	Proportion of sample
Freedom years under 25 (never lived with a partner and never had any children)	11
Freedom years over 25 (never lived with a partner and never had any children)	6
Younger settlers (aged under 45, living with partner, no children in household and no caring responsibilities)	9
Older settlers (aged 45 or over, living with partner, no children in household and no caring responsibilities)	9
Younger jugglers (aged under 45, either have children in the household or significant caring responsibilities)	25
Older jugglers (aged 45 or over, either have children in the household or significant caring responsibilities)	16
Alone again (previously lived with a partner or had children but don't currently have a partner or children in the household)	9
Active retirement with partner (all retired)	9
Active retirement without partner (all retired)	5
Not stated/could not be classified	2

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

- The lifestages also interact with the other dimensions to enable close targeting of negative health behaviours, and in particular fruit/vegetable consumption, smoking, BMI and GHQ. Analysis of lifestage by deprivation also differentiates strongly on these behaviours. Further analysis is limited only by available sample size.

# 6 Health Behaviour

The following chapter looks at the key health behaviours examined as part of the segmentation analysis. A wide range of questions were asked for each health behaviour area, and a single measure was chosen for inclusion within the overall segmentation for each behaviour. The behaviour measures were:

- smoking (does not currently smoke);
- drinking (not drinking more than the recommended weekly number of units);
- drugs (not taking illegal drugs, with taking of Class A drugs identified within this group);
- nutrition (whether eats five portions of fruit and vegetables per day);
- exercise (whether undertakes at least five sessions of 30 minutes or more exercise per week); and
- safe sexual practices (whether likely to have unprotected sexual intercourse in the next six months with a new partner or someone they had only just met).<sup>41</sup>

Where possible, questions were based on existing question sets, taken from sources such as the Health Survey for England (HSE), the Scottish Education Population Survey and the British Crime Survey (questions on drug use). Due to the large number of questions needed to measure all these behaviours using the

standard question sets, it was necessary to abridge the question sets.

While the sampling procedure and the research methodology were designed to maximise the accuracy of the data, it should be noted that the survey did not aim to provide detailed or definitive prevalence measures for any health behaviours, but rather to collect sufficient detail to enable an understanding of how the dimensions differentiate on these key health behaviours and states, and how these health behaviours and states interact. More detailed prevalence measures are available from other government surveys with larger samples, as referenced throughout this chapter.

The initial sections will look at individual health behaviours and the differences by key demographics and lifestages (see table 5.11 for lifestage definitions). Later sections will look at some key combinations of health behaviours.

All differences quoted are statistically significant unless otherwise stated. The significance tests that have been used are two-tailed and are based on a 95% confidence interval. This means that we are 95% certain of detecting a difference where one exists in the population.

## 6.1 Five+ portions of fruit and vegetables per day

Good nutrition, along with physical activity, can help to improve general well-being and combat obesity. More specifically, there has been a wide range of studies which have

41. These questions were asked only of respondents aged 18–54.

proved the health benefits of fruit and vegetables.

Increasing consumption of fruit and vegetables can significantly reduce the risk of many chronic diseases.<sup>42, 43, 44</sup> It has been estimated that eating at least five portions of a variety of fruit and vegetables per day could reduce the risk of deaths from chronic diseases such as heart disease, stroke and cancer by up to 20%.<sup>45</sup>

It has also been estimated that diet might contribute to the development of one-third of all cancers, and that increasing fruit and vegetable consumption is the second most important cancer prevention strategy, after reducing smoking.<sup>46</sup>

A series of questions were included in the Healthy Foundations questionnaire relating to diet and nutrition, covering:

- current consumption levels of fruit, salad and vegetables, starchy food, sugary food, fatty/fried foods and fish;
- number of portions of fruit and vegetables eaten on the previous day; and
- future intentions for healthy eating.

The number of portions of fruit and vegetables consumed by respondents per day was chosen as the nutritional measure for inclusion within the segmentation.

The current DH guidelines recommend that people should be eating at least five portions

of fruit and vegetables per day. This number is consistent with dietary recommendations around the world, including those from the World Health Organization.<sup>47</sup>

Self-reported behaviour can often differ from actual behaviour, and therefore it was not appropriate to simply ask respondents how many portions of fruit and vegetables they eat on an average day. Instead, respondents were asked to think about the food that they had eaten on the previous day.

The first question asked how many portions of fruit the respondent had eaten on the previous day. They were prompted that a portion is about a handful, and could include fresh, frozen, chilled, canned or dried fruit either eaten separately or as an ingredient in a meal. This also includes 100% juice and smoothies.

The second question asked how many portions of salad or vegetables the respondent had eaten on the previous day. They were again prompted that this could include fresh, frozen or tinned vegetables but did not include potatoes. The vegetables could either be eaten separately or as an ingredient in a meal.

From these two questions it was possible to estimate for each respondent how many portions of fruit and vegetables they had eaten on the previous day and therefore whether they were eating the recommended amount (five+ portions).

While the number of portions of fruit and vegetables respondents have eaten has been

42. DH, *Nutritional Aspects of Cardiovascular Disease*, HMSO, London, 1994.

43. DH, *Nutritional Aspects of the Development of Cancer*, The Stationery Office, London, 1998.

44. World Health Organization (WHO), *Diet, Nutrition, and the Prevention of Chronic Diseases*, WHO Technical Report, 2003.

45. DH, *The NHS Plan: a plan for investment, a plan for reform*, July 2000.

46. DH, *NHS Cancer Plan: a plan for investment, a plan for reform*, September 2000.

47. WHO, *Diet, Nutrition, and the Prevention of Chronic Diseases*, WHO Technical Report, 2003.

calculated for the previous day, we have assumed that this acts as a good proxy for the number of portions of fruit and vegetables they eat on an average day.

Almost two-thirds (58%) of respondents were eating fewer than five portions of fruit and vegetables per day (see figure 6.1). This is lower than the findings in the HSE 2007, where 71% of 16–74-year-olds were not eating the recommended amount of fruit and vegetables, but this is not unexpected as the questions used to calculate the number of portions of fruit and vegetables on the HSE were more detailed.

Around one in 14 respondents (7%) had not eaten any portions of fruit or vegetables on the previous day, and this was highest among men aged 16–34 (12%).

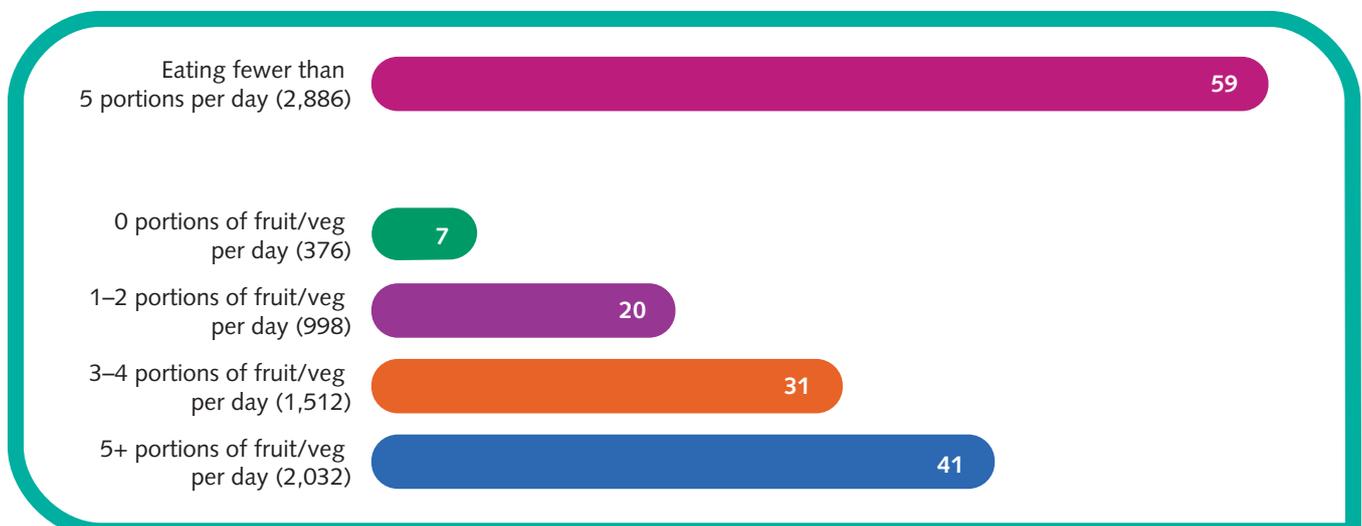
Almost two-thirds of men (66%) were not eating the recommended five portions of fruit or vegetables per day. This was significantly higher than for women, where just over half (51%) were eating less than the guidelines (see figure 6.2). Men were less likely to have an

ideal body mass index (BMI) (see section 6.8.2), and therefore it is not surprising that they are more likely to be eating less than the recommended five portions of fruit and vegetables per day. As well as the direct health benefits, eating fruit and vegetables can help to achieve other dietary goals such as helping to maintain a healthy weight.

Figure 6.2 shows that respondents in the younger age groups (16–34) were the most likely to be eating fewer than the recommended daily five portions of fruit and vegetables. As age increases, the proportion of respondents eating less than the recommended guidelines decreases. However, even among the age group most likely to eat the recommended number of portions of fruit and vegetables (those aged 55+), around half of respondents (51%) were still not eating five portions of fruit and vegetables per day.

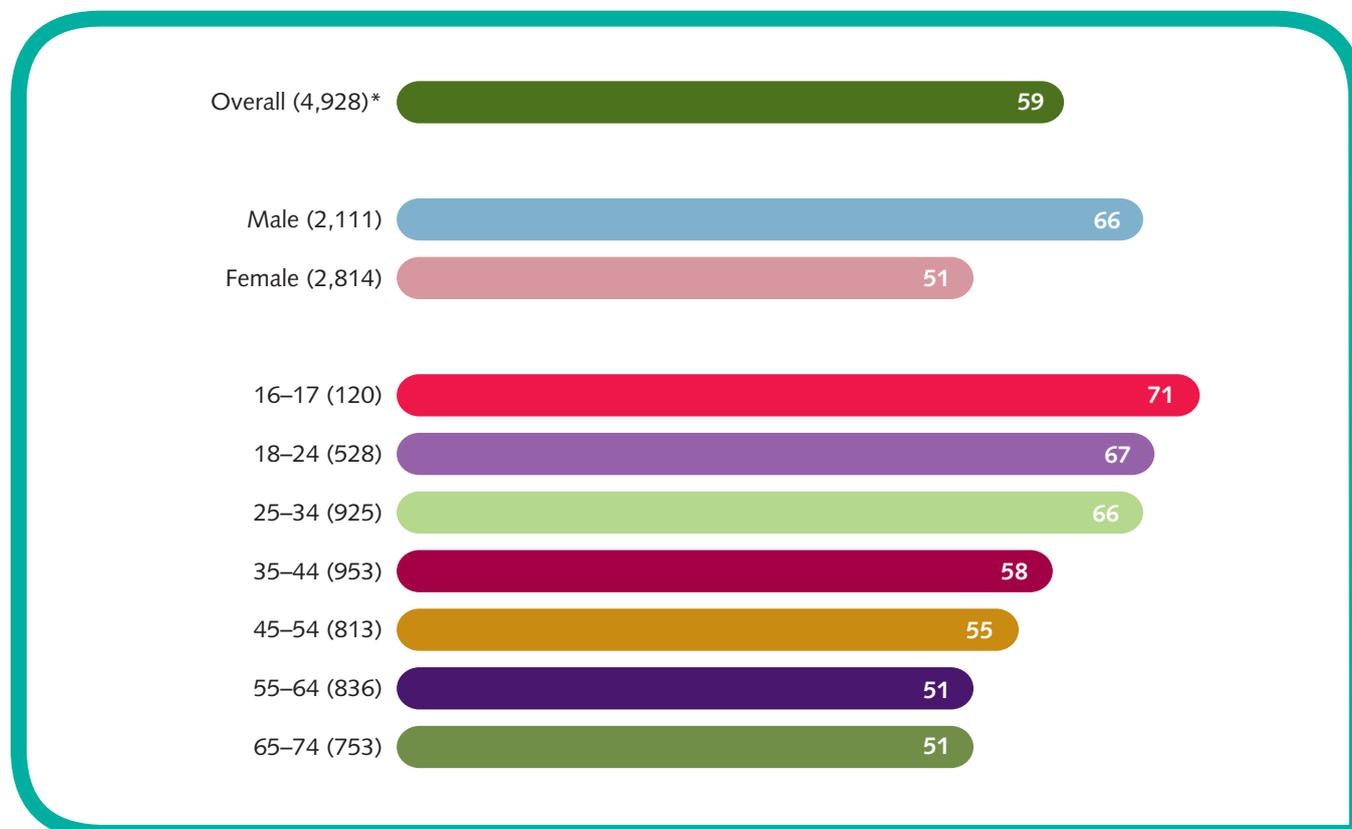
Respondents from ethnic minority backgrounds (77%) were less likely than White respondents (56%) to be eating the recommended five portions of fruit and vegetables per day.

**Figure 6.1: Overall proportion (%) of respondents eating fewer than five portions of fruit and vegetables on the previous day (QF1a/QF1b)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Figure 6.2: Proportion of respondents (%) eating fewer than five portions per day of fruit/veg by age and gender (QF1a/QF1b)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

\* Three people stated their gender as 'other'

However, it is worth noting that ethnic minority respondents tended to be younger than White respondents, and when age was controlled for, the difference, while still significant, became slightly less marked (64% of White respondents aged 16–34 compared with 82% of respondents from ethnic minority backgrounds of the same age).

Respondents from households where the household reference person<sup>48</sup> was not working or in a routine or manual occupation were more likely to be eating fewer than the recommended five portions of fruit and vegetables per day (see table 6.1). However,

people in routine and manual or workless households tended to be younger, and as already noted, younger people tend to eat fewer portions of fruit and vegetables.

Three-quarters of respondents (73%) living in the 10% most deprived areas ate fewer than five portions of fruit and vegetables per day, but people living in these areas tended to be younger (50% aged 16–34 in the 10% most deprived areas compared with 32% in other areas) and living in workless or routine and manual households (66% in the 10% most deprived areas compared with 35% in other areas).

48. The household reference person, also known as the 'highest income householder', must be a householder (i.e. a person in whose name the accommodation is owned or rented). Where there are joint householders, the person with the **highest income** is selected. If two or more householders have the same income, the **oldest** is selected.

**Table 6.1: Proportion of respondents (%) eating fewer than five portions per day of fruit/veg by National Statistics Socio-Economic Classification (NS-SEC) and deprivation (QF1a/QF1b)**

NS-SEC category	Proportion of respondents
Managerial and professional occupations (1,445)	52
Intermediate occupations (944)	58
Routine and manual occupations (2,189)	65
Never been in paid employment (268)	78
10% most deprived areas (2,227)	73
Not 10% most deprived areas (2,701)	57

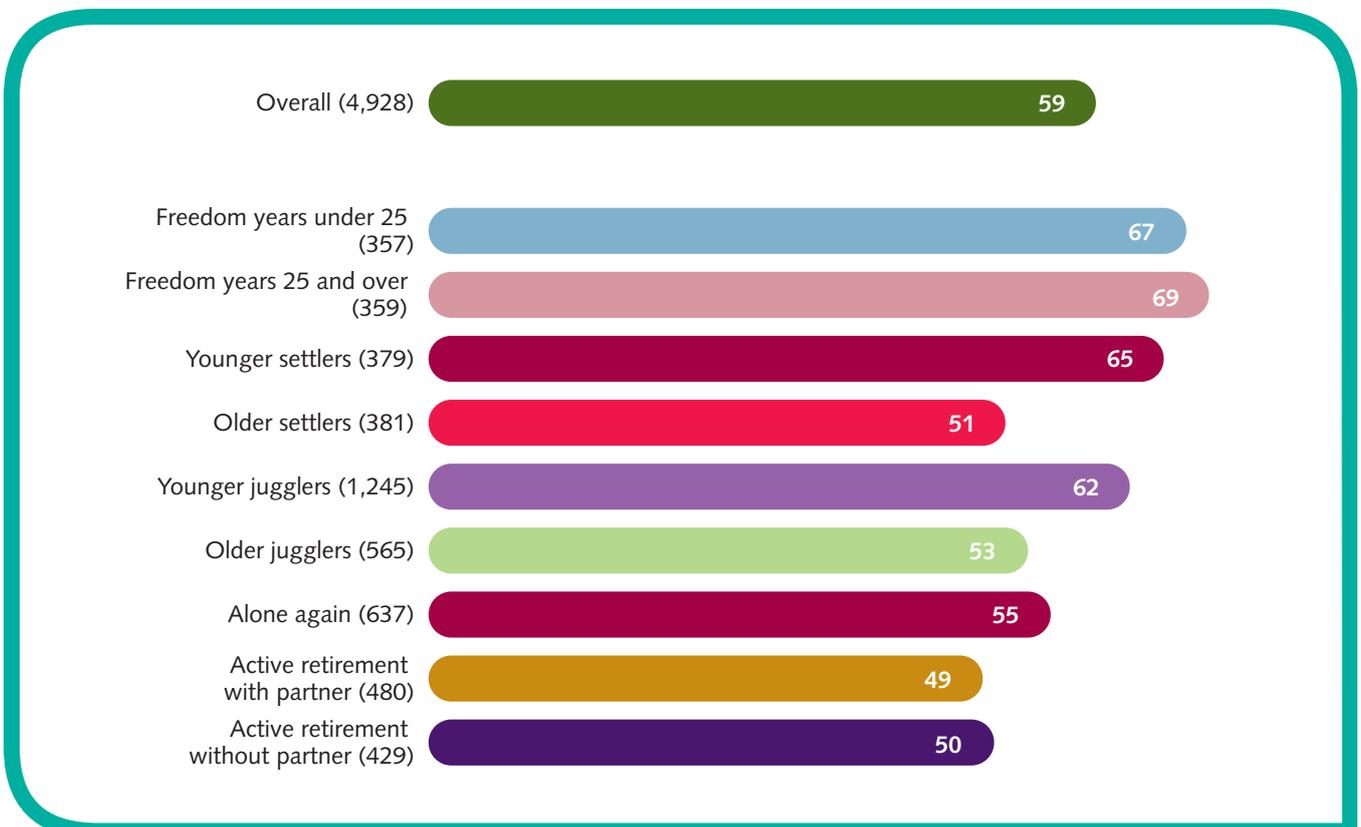
Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

### 6.1.1 Portions of fruit and vegetables by lifestage

As previously noted, respondents in the younger age groups were more likely to be eating fewer than five portions of fruit and vegetables per day. Consequently, it is not surprising that respondents in the younger lifestages were also more likely to be eating fewer than the recommended five portions of fruit and vegetables per day (see figure 6.3) due to the close link between the lifestage definitions and age.

Respondents in the Freedom years were the most likely to be eating fewer than five portions of fruit and vegetables per day (67% aged under 25 and 69% aged 25+), and respondents in the Older settler and Retired lifestages were the least likely to be

**Figure 6.3: Proportion of respondents (%) eating fewer than five portions of fruit/veg per day (QF1a/QF1b)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

eating fewer than five portions of fruit and vegetables per day.

## 6.2 Exercise

Physical activity is key to improving general well-being and combating a variety of diseases, and is an important factor in helping to maintain a healthy body weight.

Lack of physical activity is having a considerable contribution to the obesity epidemic. It is also a key contributor to a wide range of chronic diseases such as coronary heart disease, stroke, diabetes and some cancers.<sup>49</sup>

The current DH guidelines recommend that adults should be taking at least five sessions of exercise per week lasting 30 minutes or more, and for children at least one hour or more exercise per day. In order to understand what proportion of the sample were not reaching these targets, a series of questions were asked to establish current levels of exercise and physical activity.

All respondents were shown a list of physical activities and asked which, if any, they did in a typical week. The list included a wide range of activities, and full details can be found in the questionnaire.

Respondents were asked to mention only activities they did to the point where they were slightly sweaty, breathing faster than usual and their heart was beating faster through physical exertion. This clarification point was added after the pilot to try and ensure that reported activity levels were not overestimated, e.g. people weren't including a leisurely stroll to the

corner shop within their reported physical activities.

Respondents were then asked to think about all of the activities that they did in a typical week, and to say on average how long they spent doing the activities on each occasion.

Finally, respondents were asked, taking all of the activities they did together, how many times in the week they usually did these activities.

Based on responses to the number and duration of physical activity sessions per week, it was possible to calculate for each respondent whether they were meeting the DH recommendations of five+ sessions of 30 minutes or more exercise per week.

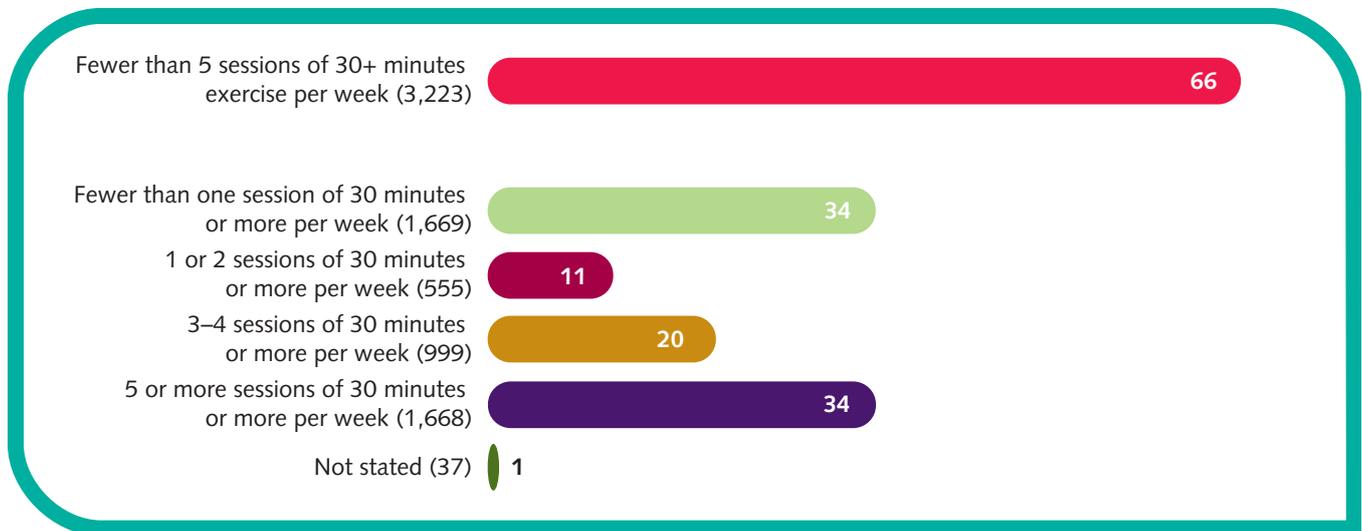
Overall, two-thirds of respondents (66%) were not doing the recommended amount of exercise (see figure 6.4), which is slightly higher than the 2006 HSE (59% of 16–74s). A third of respondents (34%) were doing fewer than one session of 30-minute exercise per week, and women aged 65–74 the least likely to be doing any exercise (55%).

Women (69%) were more likely than men (62%) to be doing fewer than the recommended five sessions of 30 minutes exercise per week. This is similar to the findings of the 2006 HSE (64% women and 53% men).

There was little variance across age apart from at the two extreme ends of the age scale (see figure 6.5). Three-quarters of respondents (75%) aged 65–74 were not doing the recommended amount of exercise compared with over half (57%) of those aged 16–17.

49. K. McPherson, A. Britton and L. Caser, *Coronary Heart Disease: estimating the impact of changes in risk factors*, National Heart Forum, 2002.

**Figure 6.4: Physical activity levels (%) (QF4/QF5/QF6)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

In addition to gender, ethnicity also appears to play a role on levels of physical activity. Three-quarters of respondents (76%) from ethnic minority backgrounds were not doing the recommended five sessions of at least 30 minutes exercise per week compared with 64% of White respondents.

Working status also appears to play a role in physical activity levels (see table 6.2). Respondents who were not currently working (70%) or who were living in workless households (74%) were more likely to be doing less than the recommended amount of exercise per week. However, it is worth noting that respondents aged 65–74 were more likely to be not working and in workless households, and it has already been noted that respondents aged 65–74 were the least likely to be getting the recommended five sessions of 30 minutes or more exercise per week.

**Table 6.2: Proportion of respondents (%) not getting recommended amount of exercise, by working status and household working status (QF4/QF5/QF6)**

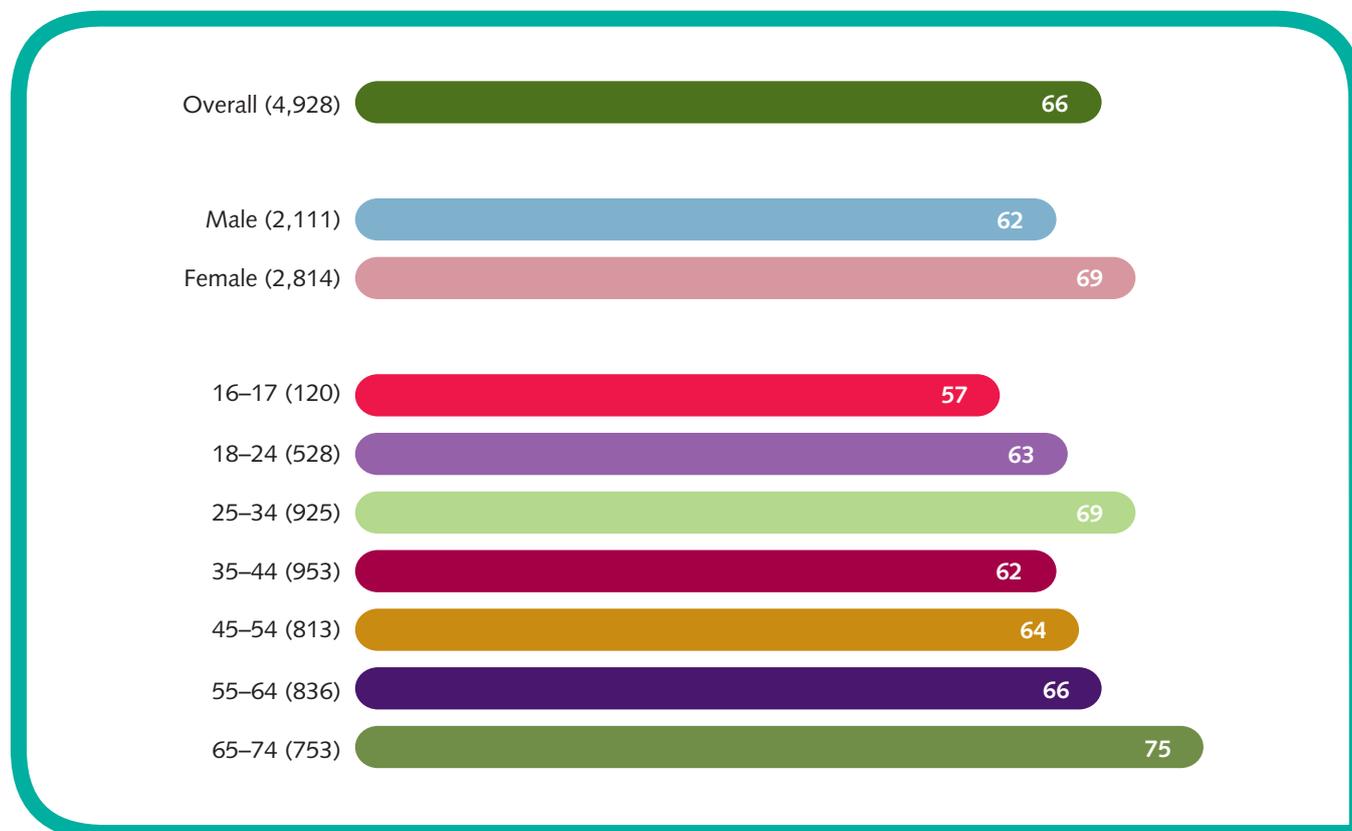
Status	Proportion
Respondent working (2,488)	63
Respondent not working (2,434)	70
Respondent in working household (3,083)	63
Respondent in workless household (1,200)	74

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

### 6.2.1 Physical activity by lifestage

As respondents in the older age categories were more likely to be taking fewer than the recommended five sessions of 30 minutes exercise or more per week, it is unsurprising that respondents in the older lifestages were the least active (see figure 6.5). Almost three-quarters (73%) of respondents who were retired were not doing the recommended amount of exercise (see figure 6.6). While respondents in the Freedom years (under 25)

**Figure 6.5: Proportion of respondents (%) doing fewer than five sessions of 30+ minutes of physical activity per week, by age and gender (QF4/QF5/QF6)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

and Younger juggler lifestages were the most active, three-fifths were still not getting the recommended amount of exercise.

### 6.3 Smoking

Smoking has long been established as the principal avoidable cause of premature deaths in the UK, and each year approximately 83,000 people in England die due to smoking-related illnesses<sup>50</sup> such as cancer, heart disease and strokes. These findings are reflected worldwide, and experts agree that smoking is the single biggest cause of cancer in the world<sup>51</sup> and

accounts for over a quarter of cancer deaths in developed countries.<sup>52</sup>

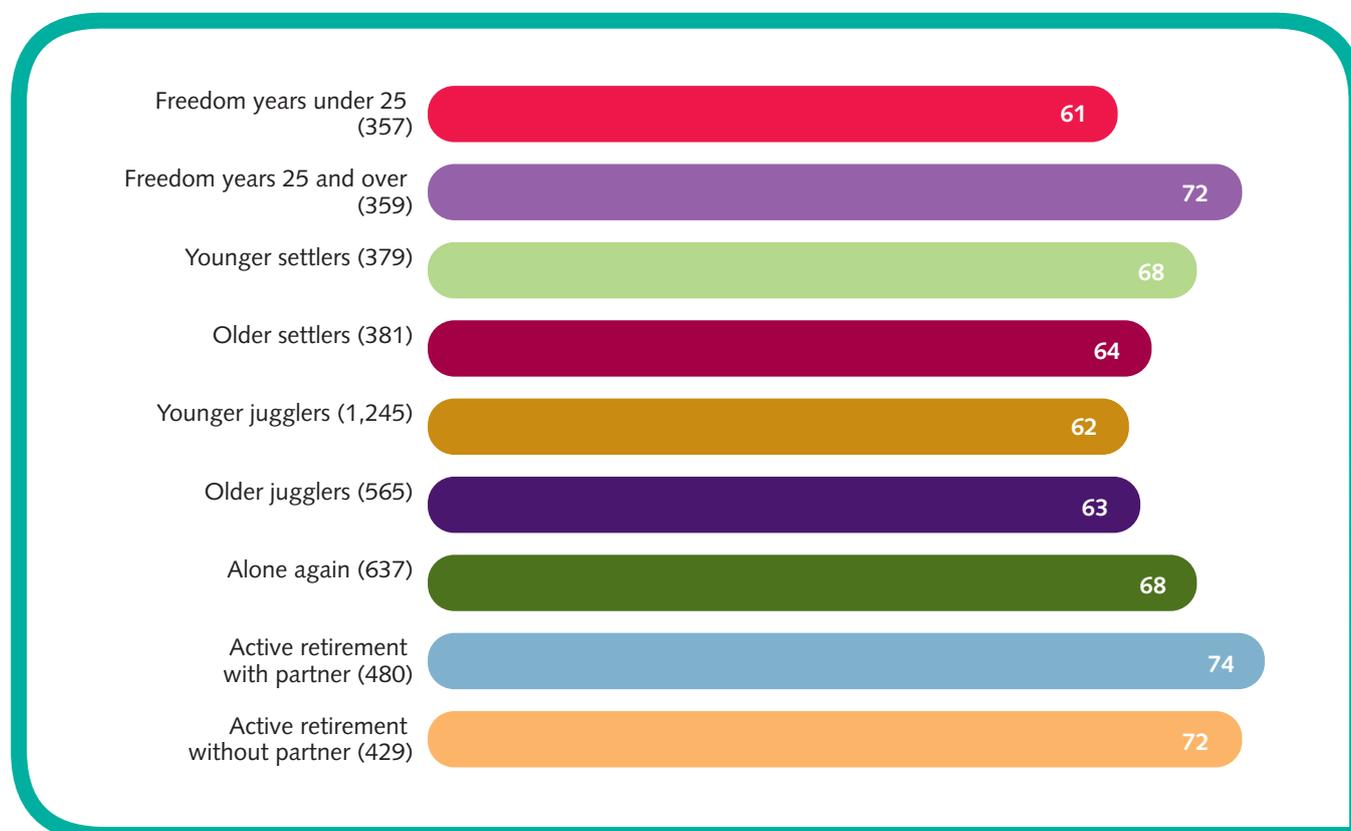
In addition to the dangers of first-hand smoke, medical and scientific evidence shows that exposure to second-hand smoke increases the risk of serious medical conditions such as lung cancer, heart disease, asthma attacks, childhood respiratory disease, sudden infant death syndrome (SIDS) and reduced lung function. It is the dangers of second-hand smoke that led to the ban of smoking in virtually all enclosed public places and workplaces in England on 1 July 2007.

50. The Information Centre for Health and Social Care, *Statistics on Smoking: England, 2008*, 2008.

51. R. Doll and R. Peto, Epidemiology of Cancer, in D. Warrell, T. Cox and J. Firth (eds), *Oxford Textbook of Medicine*, Oxford University Press, 2005.

52. R. Peto, A. Lopez, J. Boreham and M. Thun, *Mortality from Smoking in Developed Countries, 1950-2000*, 2nd edn, Oxford University Press, 2006.

**Figure 6.6: Proportion of respondents (%) doing fewer than five sessions of 30+ minutes of physical activity per week, by lifestage (QF4/QF5/QF6)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

DH has a tobacco programme aimed at reducing the overall levels of smoking, and has a target to reduce the number of people smoking to 21% or less by 2010. In 1980, 39%<sup>53</sup> of adults smoked and by 2006 this had decreased to 22% of the population. Smoking prevalence is a major public health target and was one of the key behaviour measures for the segmentation.

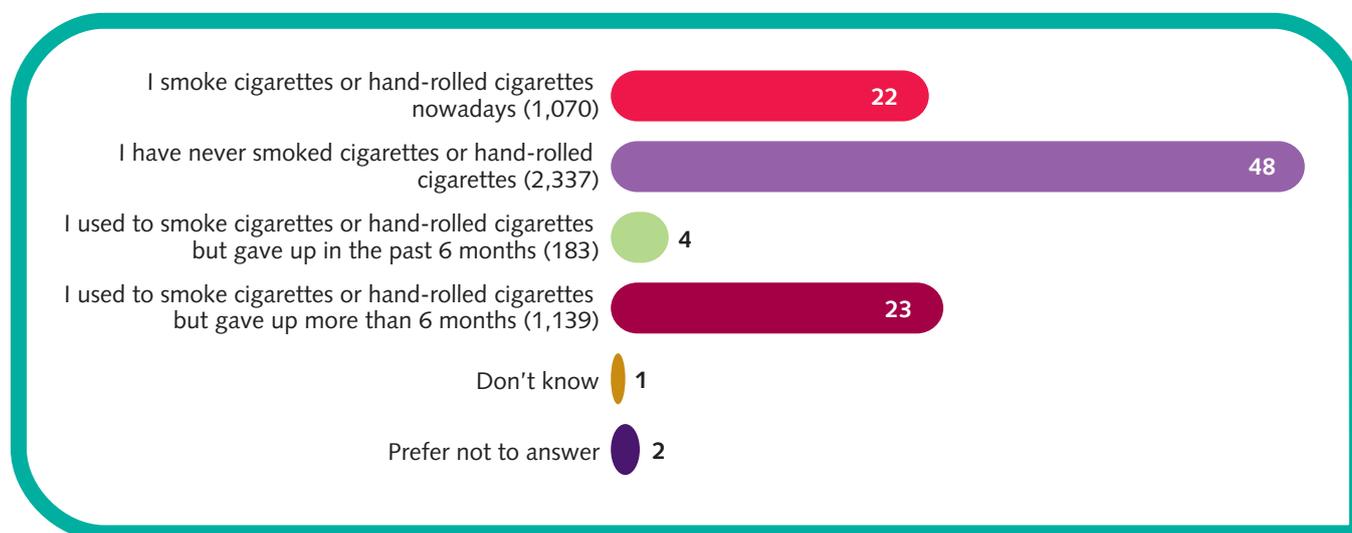
A series of questions were included within the self-completion section of the survey relating to smoking behaviours. They were:

- whether people currently or have ever smoked;
- age of starting to smoke regularly;

- how many cigarettes or hand-rolled cigarettes smoked per day; and
- whether people would like to stop smoking.

Almost a quarter of people interviewed (22%) stated that they smoked cigarettes or hand-rolled cigarettes nowadays, which is the same as the General Household Survey findings (2007). A similar proportion (23%) had previously smoked but had given up more than six months previously, and around one in 20 (4%) had given up in the previous six months. Almost half of respondents interviewed (48%) had never smoked (see figure 6.7).

53. *General Household Survey 2006*, Office for National Statistics, London.

**Figure 6.7: Proportion of respondents (%) smoking cigarettes or hand-rolled cigarettes (QG13)**

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

Overall, similar proportions of males and females smoked (see table 6.3), but there was variance by age. Respondents in the youngest categories (16–34) were more likely to smoke (29%) compared with those aged 34–64 (21%) and those aged 65–74 (10%).

Within the 16–34-year-old age group there was significant variance by gender. Females were more likely to smoke at a younger age than males. A quarter (25%) of females aged 16–17 smoked, which is almost twice the rate of males (13%). As age increases, so does the smoking prevalence for both males and females. However, it peaks for females in the 18–24 age group (33%) and then starts to decrease but for males smoking prevalence peaks in the 25–34 age group.

**Table 6.3: Smoking prevalence (%) by age and gender (QG13)**

	Proportion smoking
Male (2,111)	23
Female (2,814)	22
Male (16–17) (56)	13
Male (18–24) (213)	26
Male (25–34) (367)	35
Female (16–17) (64)	25
Female (18–24) (314)	33
Female (25–34) (558)	25

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Figure 6.8: Proportion of respondents smoking (%), by NS-SEC (QG13)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

Thirty per cent of respondents in routine and manual employment households classified themselves as current smokers (see figure 6.8), which was lower than the 2007 HSE figure (32%). A slightly lower proportion of respondents living in workless households were also current smokers (24%). Respondents in routine and manual or workless households were almost twice as likely to smoke as respondents in managerial and professional households (15%).

In addition to age and household working status, respondents from ethnic minority backgrounds (17%) were less likely to smoke than White respondents (23%). The 2007 HSE was the last to report smoking by ethnicity, where 16% of respondents from an ethnic minority background smoked. Since 2005 the proportion of respondents smoking has decreased relatively equally across White respondents and those from an ethnic minority background.

Household situation can also have an effect on whether respondents smoked or not. Respondents living in single-person households were significantly more likely to smoke than those living in multiple-adult households (see table 6.4). Similarly, single parents were more likely to smoke than those who were in two-parent families.

**Table 6.4: Proportions of adults (%) smoking, by household composition (QG13)**

Household composition	Proportion smoking
Single-adult household (1,247)	31
Multiple-adult household (2,008)	20
Single-parent family (468)	32
Two-parent family (1,196)	21

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

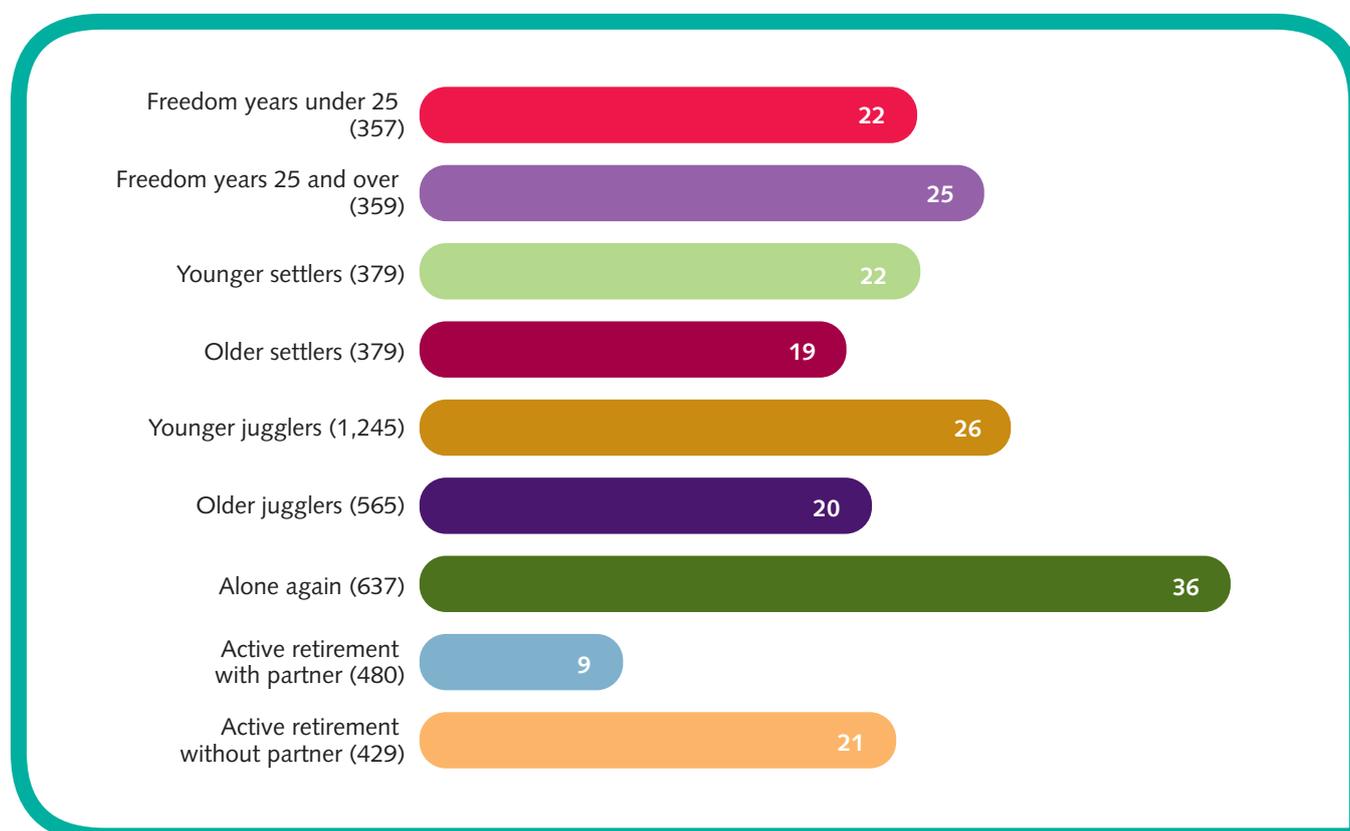
Following on from household composition, household environment can also contribute to whether respondents smoke or not. Respondents living in poverty were more likely to smoke (32%) than those who do not live in poverty (25%). However, it is worth noting that younger people are more likely to be living in poverty (18% aged 18–34 and 14% aged 35–64) and, as previously noted, smoking prevalence is higher among young people. In addition, higher proportions of people living in routine and manual (26%) and workless (36%) households were living in poverty compared with those in managerial and professional (7%) and intermediate professions (15%). As previously noted, respondents living in routine and manual households were more likely to smoke.

### 6.3.1 Smoking by lifestage

As smoking prevalence was highest among respondents living in single-adult households, it is unsurprising that smoking prevalence was highest among people in the Alone again and Freedom years (25+) lifestages, as these were the groups most likely to be living alone (65% of Alone agains lived alone and 43% of Freedom years 25+).

Presence of partner in retirement also has an effect on likelihood to smoke. One in ten (9%) retired respondents with a partner smoked compared with twice as many (21%) who did not have a partner (see figure 6.9).

**Figure 6.9: Proportion of respondents smoking (%) by lifestage (QG13)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

## 6.4 Alcohol consumption

Alcohol consumption has been steadily increasing over recent decades and has brought with it associated health and mortality problems. In 2005, 6,570 people in England and Wales died from causes directly linked to alcohol consumption: of these around two-thirds died from alcoholic liver disease.<sup>54</sup> In the same time period there were 52,270 hospital admissions in England of adults aged 16+ with a primary diagnosis relating to alcohol. This figure represented a 50% increase since 1995/96.

In 2004, the government estimated that alcohol misuse was costing the health service in England between £1.4 and £1.7 billion per year.

The daily guidelines for sensible drinking were updated in 1995, and recommended that men should not drink more than 3–4 units per day and a maximum of 21 units per week, and women should drink no more than 2–3 units per day with a maximum of 14 units per week.

To understand whether people were drinking within the recommended guidelines or not, a series of questions were asked about alcohol consumption. As these questions were potentially sensitive, they were asked as part of the self-completion section. The questions were:

- whether they had drunk any alcoholic drinks in the previous 12 months;
- whether they had drunk any alcoholic drinks in the previous seven days;
- how many of the following types of alcoholic drinks they had drunk in the previous seven days:

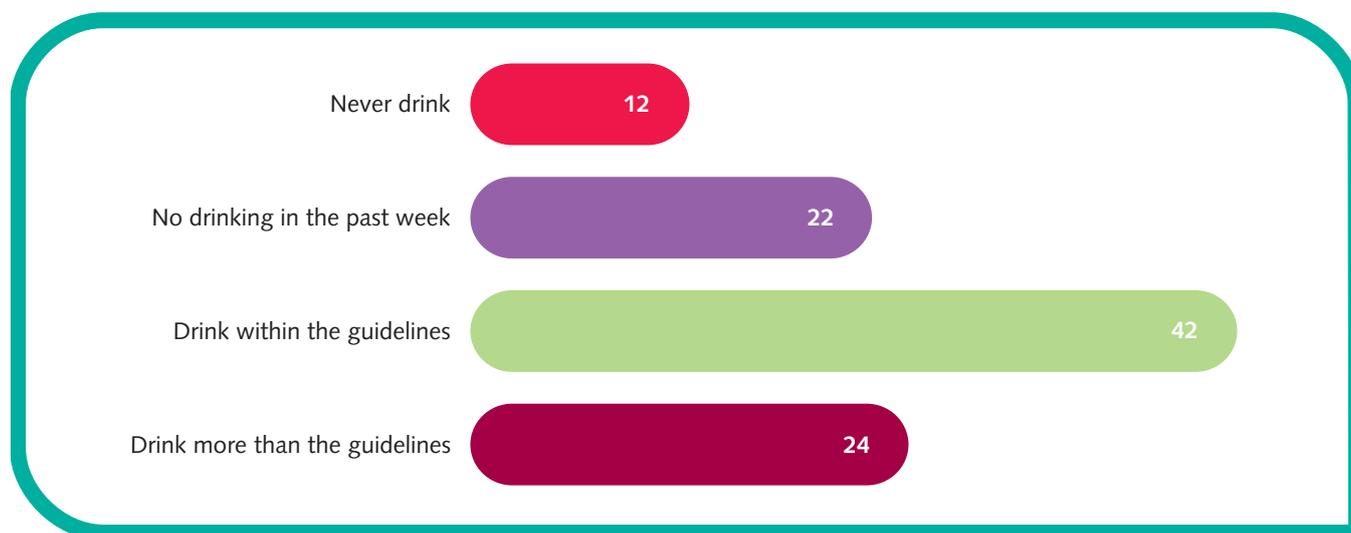
- pints or bottles of normal-strength beer, bitter, lager or cider;
- pints or bottles of extra-strong beer, bitter, lager or cider;
- glasses of wine;
- glasses of martini, sherry or port (not wine);
- single measures of spirits or liqueur such as whisky, gin, vodka, etc.; or
- bottles of designer drinks or alcoholic lemonade such as Castaway, Red, Reef, Hooch, Bacardi Breezer, Smirnoff Ice, etc.; and
- future behaviour relating to drinking alcoholic drinks.

The number of units respondents had drunk over the previous seven days was chosen as the alcohol health measure to be included within the overall segmentation. The definition of one unit of alcohol is 8 mg (or 10 ml) of pure alcohol. The number of units in an alcoholic drink depends on the size of the drink, how strong it is and the size of a measure.

In order to calculate the number of units each respondent had drunk over the previous seven days, a unit score was applied to each type of drink that they had drunk, and an overall score was calculated. Details of the unit scores for each drink can be found in appendix 12.

Overall, one in eight respondents had not drunk in the previous 12 months and a fifth (22%) had not drunk within the previous seven days. Two-fifths of respondents (42%) had drunk alcohol within the previous seven days but had stayed within the recommended

54. National Statistics and NHS Information Centre, *Statistics on alcohol: England 2007*, 2007.

**Figure 6.10: Overall alcohol consumption (%) (QG18/QG19/QG21)**

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

guidelines, and a quarter (24%) of all respondents had drunk more than the recommended guidelines (see figure 6.10). The proportion of respondents who had drunk more than the recommended guidelines is lower than the 34% recorded among 16–74-year-olds in the 2007 HSE, although it should be noted that the questions asked in the HSE made respondents think about their drinking in much more detail, so it is not surprising that prevalence estimates are higher.

There were significant differences by demographics for alcohol consumption, and this is discussed in the following paragraphs.

Overall, men (28%) were more likely to be drinking above the recommended alcohol guidelines than women (20%).

There appears to be little difference across age groups, with approximately a fifth to a quarter of respondents in each age group drinking more than the guidelines (see table 6.5). However, when we look at gender within age there are some differences. Three in ten (30%) women aged 18–24 drank more than the guidelines compared with a quarter (24%) of

males of a similar age. As age increases, drinking tails off sharply for women, while for men the decline is less marked.

**Table 6.5: Proportions of respondents (%) drinking more than the recommended number of units of alcohol per week, by age (QG18/QG19/QG21)**

Age/gender	Proportion
16–17 (120)	20
18–24 (528)	27
25–34 (925)	20
35–44 (953)	28
45–54 (813)	25
55–64 (836)	25
65–74 (753)	22
Females 16–17 (64)	19
Females 18–24 (314)	30
Females 25–34 (558)	15
Males 16–17 (56)	21
Males 18–24 (213)	24
Males 25–34 (367)	25

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

In addition to gender, ethnicity also played a role in the likelihood of drinking more than the recommended number of units of alcohol per week (see figure 6.11). Almost half (47%) of respondents from ethnic minority backgrounds had not drunk in the previous year and a further fifth (21%) had not drunk in the previous seven days. Around one in 20 (6%) respondents from an ethnic minority background had drunk more than the recommended amount of alcohol in the previous week compared with over a quarter (27%) of White respondents.

Respondents in poverty or poor environments generally show poorer health behaviours, but alcohol consumption breaks this trend (see table 6.6). A fifth of respondents (19%) living in poverty drink more than the recommended amounts compared with almost three in ten (28%) respondents not living in poverty. Similarly, less than a fifth (18%) of respondents living in the 10% most deprived areas drink more than the recommended amount compared with a quarter (25%) of those living in less deprived areas.

**Table 6.6: Proportion of respondents (%) drinking more than the recommended guidelines for alcohol, by households in poverty and Indices of Multiple Deprivation (IMD) score (QG18/QG19/QG21)**

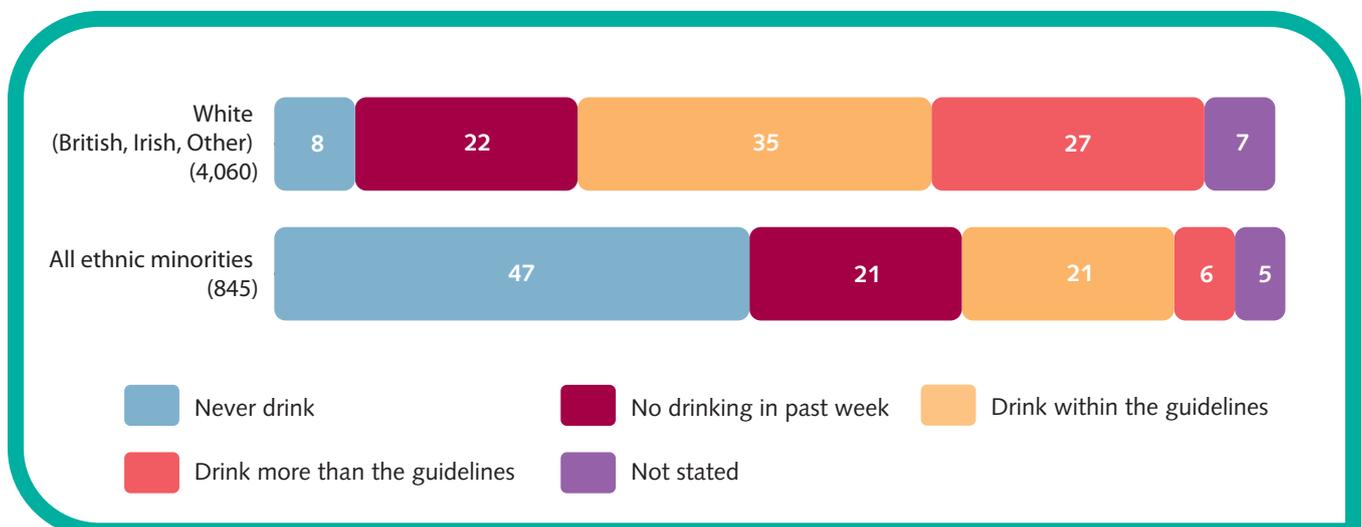
NS-SEC category	Proportion
Household in poverty (1,415)	19
Household not in poverty (2,329)	28
10% most deprived areas (2,227)	18
Not 10% most deprived areas (2,701)	25

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

### 6.4.1 Alcohol consumption by lifestage

Figure 6.12 shows the proportion of respondents drinking more than the recommended guidelines by lifestage. Across all of the lifestages, approximately a fifth to a quarter of all respondents are drinking more than the recommended amounts. Respondents in the Freedom years (25+) were the least likely to be drinking more than the guidelines (16%), and respondents in the Alone again category were the most likely to be drinking more than the guidelines (29%).

**Figure 6.11: Alcohol consumption (%) by ethnicity (QG18/QG19/QG21)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

## 6.5 Drug taking

Respondents were asked a series of questions relating to whether they had taken any illegal drugs over the previous 12 months. Due to the sensitivity of these questions they were asked as part of the self-completion section. As different drugs have various nicknames and are known differently in different parts of the country, a great deal of thought went into the name lists. A full list of the drugs that were asked about can be found in the questionnaire.

The following sections will look at the proportion of people who have taken any drugs, those who have taken Class A drugs and those who have used cannabis. Across all drugs there is clear impact of gender and age.

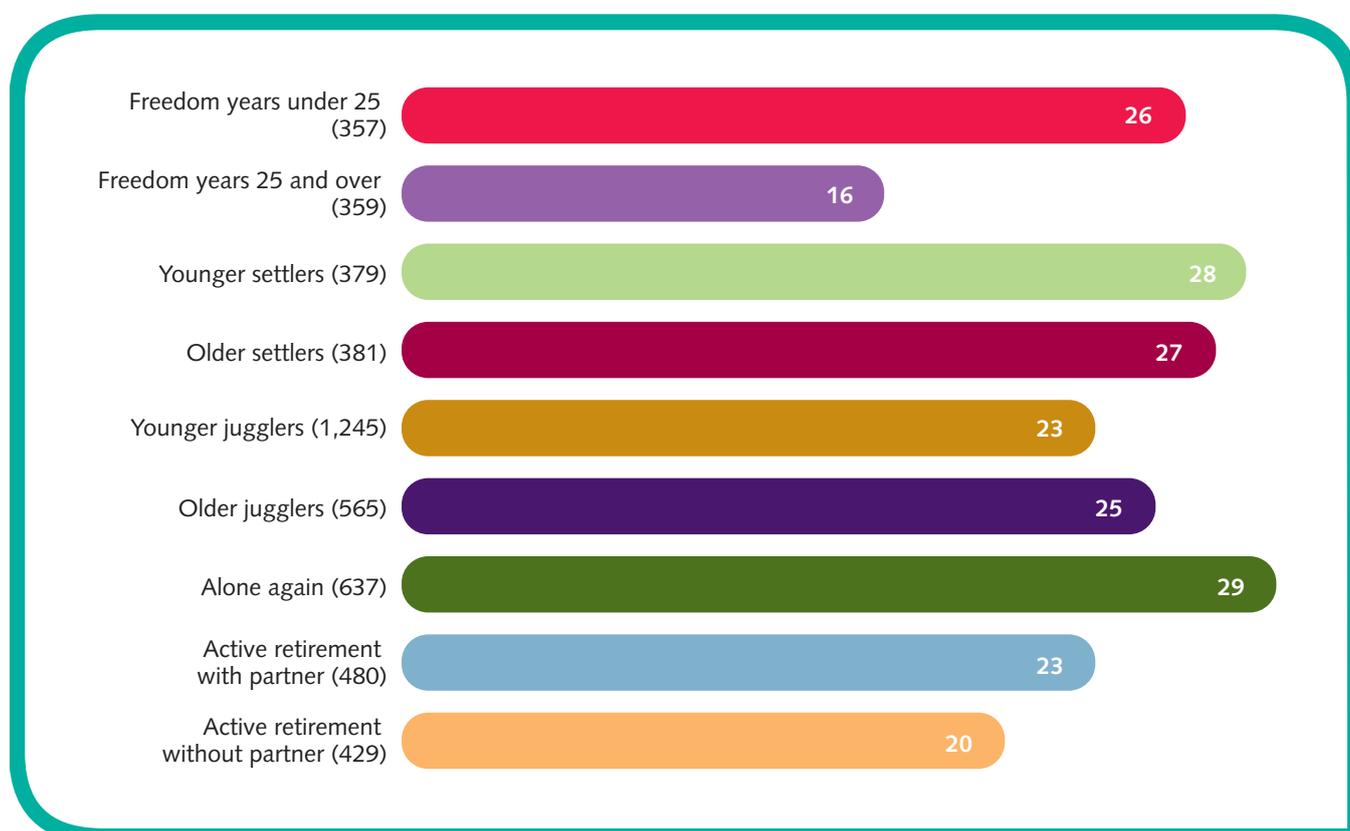
### 6.5.1 Any drug

Around one in 12 of all respondents (8%) said they had taken any kind of illegal drug in the previous 12 months. When filtered on age (16–59) this figure increases to 10%, which matches the findings of the British Crime Survey 2006/07 (10%).

Drug taking was highest among males and respondents in the youngest age categories (see figure 6.13). Around a fifth (21%) of respondents aged 18–24 had taken a drug. Drug taking was particularly high among males aged 16–17 (22%) and was around five times that of females of the same age (4%).

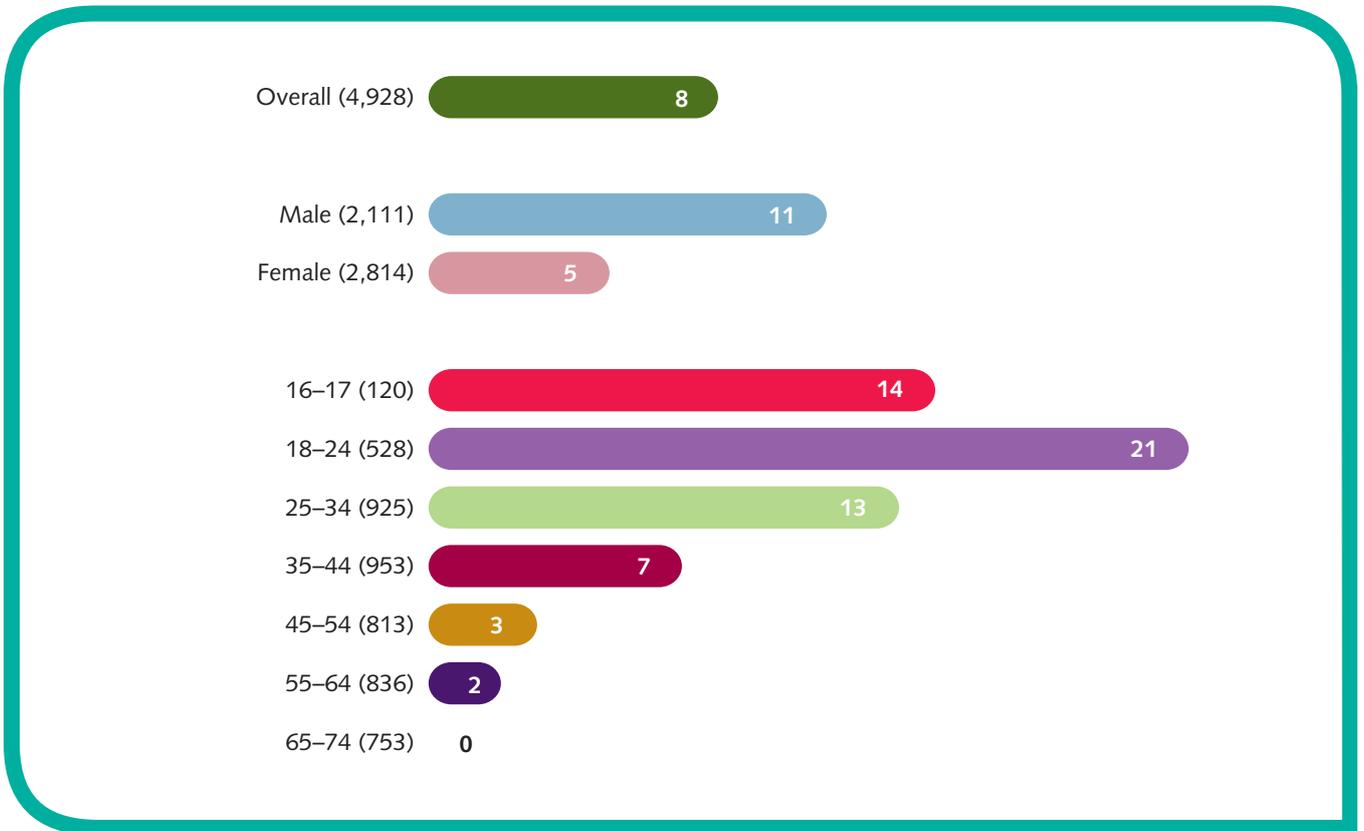
Respondents in the most deprived areas were more likely to have taken illegal drugs in the previous 12 months. Figure 6.14 shows drug

**Figure 6.12: Proportion of respondents (%) drinking more than the recommended amount of alcohol, by lifestage (QG18/QG19/QG21)**



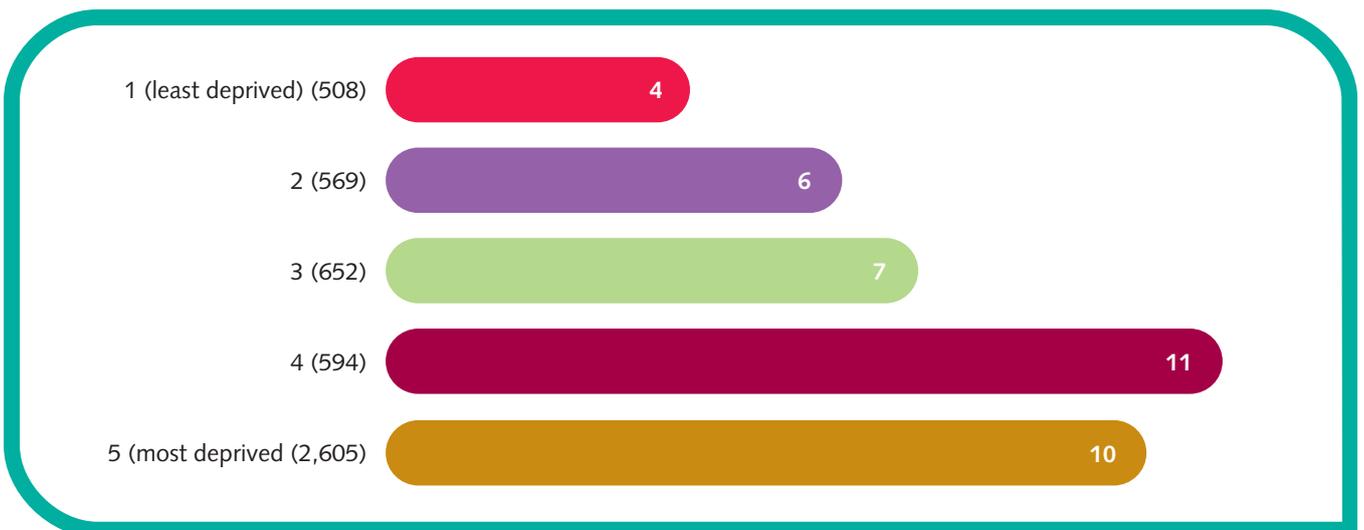
Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Figure 6.13: Proportion of respondents (%) taking drugs, by age and gender (QG25)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Figure 6.14: Proportion of respondents (%) taking drugs, by IMD quintile (QG25)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

taking by IMD quintile, with the likelihood of having taken drugs in the previous 12 months higher in the more deprived quintiles, with those in the 4th and 5th quintiles most likely to have taken illegal drugs. However, it is worth noting that respondents in the most deprived areas tend to be younger. When age is controlled for, there are no significant differences for IMD.

Respondents in single-adult households were more likely to have taken drugs in the previous 12 months than those in multiple-adult households (see table 6.7). A similar pattern is evident for single parents; they are more likely to have taken drugs than people in two-parent families.

**Table 6.7: Proportion of respondents (%) who have taken any drugs, by household status (QG25)**

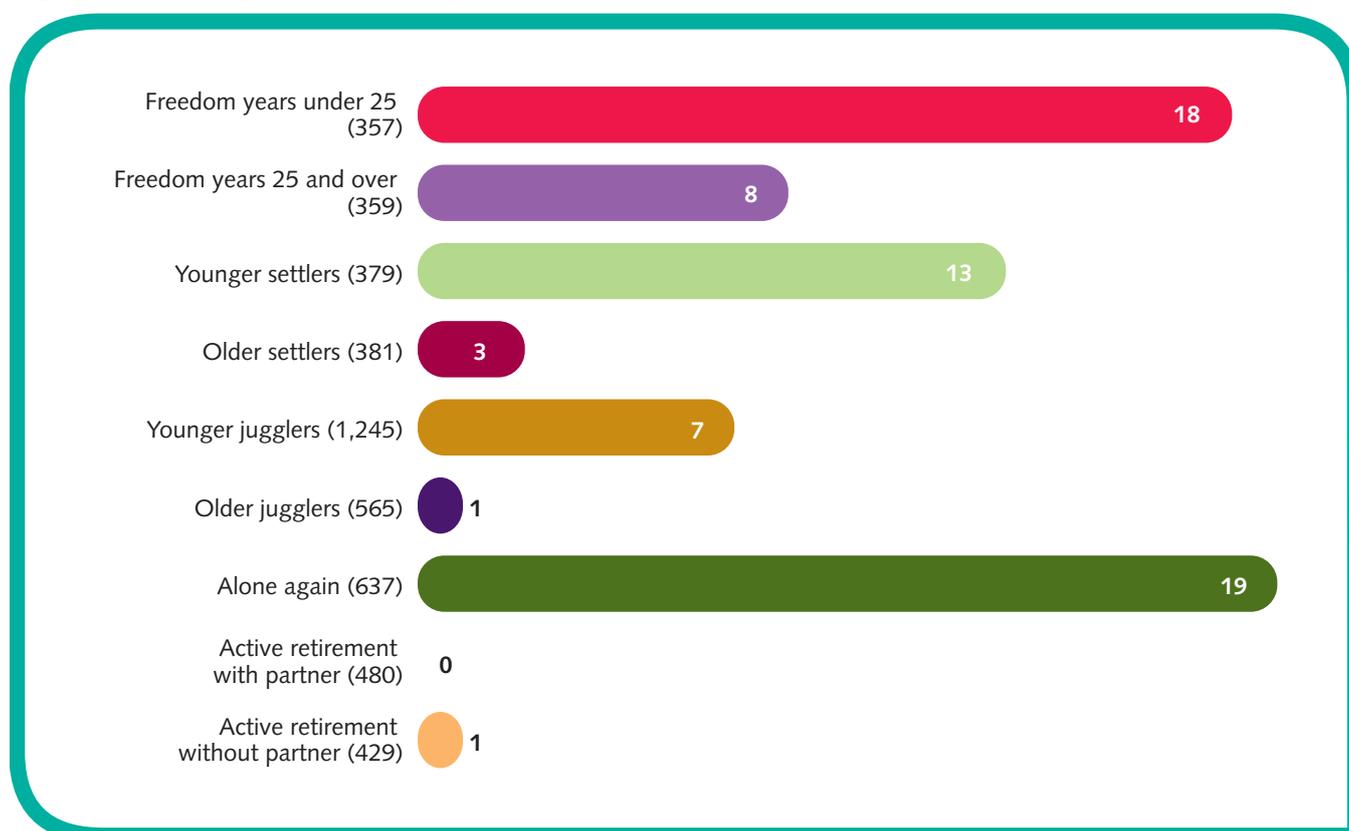
Household situation	Proportion
Single-adult household (1,247)	11
Multiple-adult household (2,008)	7
Single-parent family (468)	9
Two-parent family (1,196)	6

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

### Drug use by lifestage

Drug use in the previous 12 months varied widely by lifestage. Younger respondents were more likely to have taken drugs, so it is not unexpected that respondents in the younger lifestages are more likely to have taken an

**Figure 6.15: Drug use by lifestage (%) (QG25)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

illegal drug in the previous 12 months (see figure 6.15) than those in the older lifestages.

Drug use was highest among respondents in the Alone again lifestage (19%). Interestingly, respondents from this lifestage were also more likely to be drinking more than the recommended number of units of alcohol (29%).

A similar proportion (18%) of respondents in the Freedom years (under 25) lifestage also had used any type of drug in the previous 12 months.

### 6.5.2 Class A drugs

Overall, only 3% of respondents said they had taken a Class A drug in the previous 12 months. Similar patterns of usage were evident in overall drug use and cannabis use.

Class A drug use was highest among males and respondents in the younger age groups (see figure 6.16). Over one in ten (11%) men aged 18–24 had used a Class A drug in the previous 12 months.

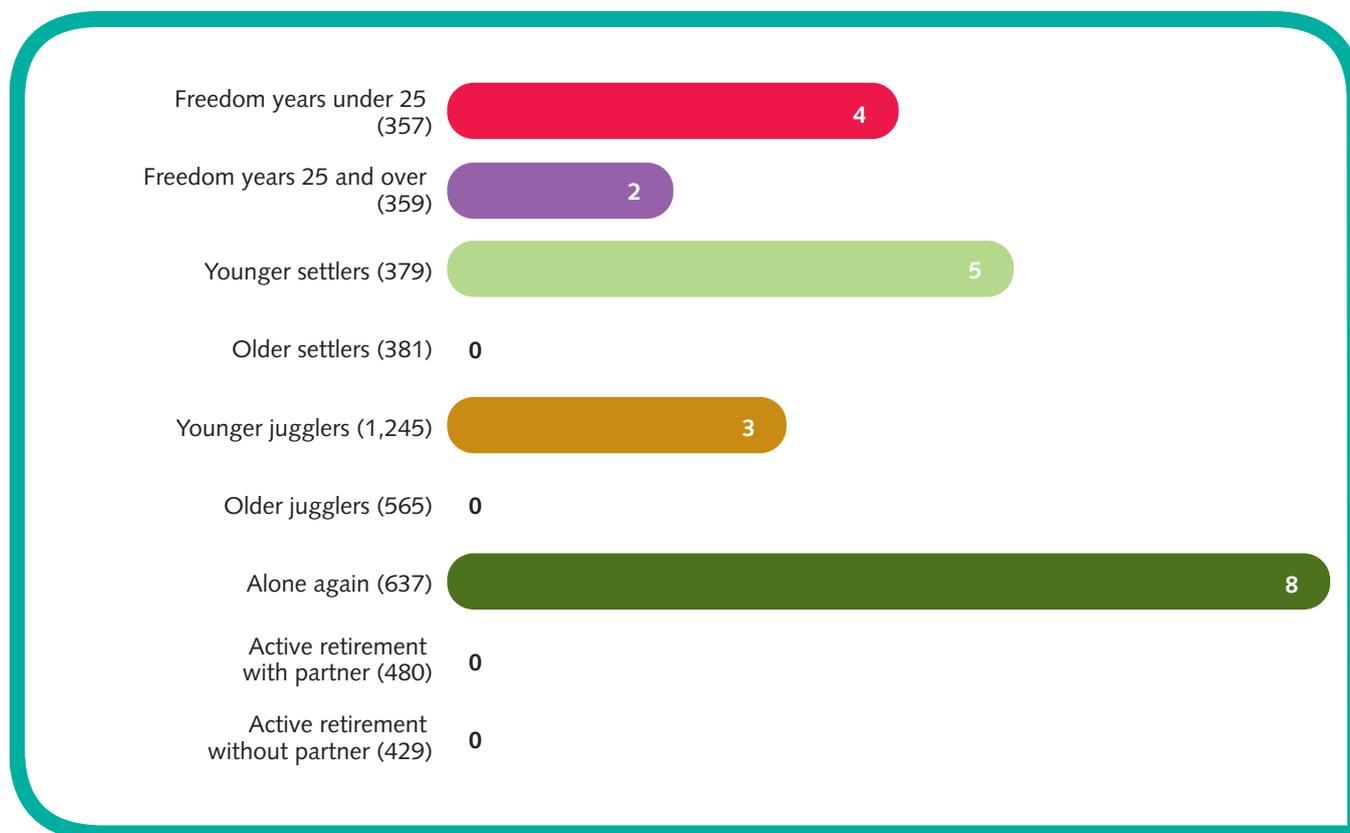
Due to the very small sample sizes of this group, analysis was very limited. There do not appear to be any significant differences in terms of IMD score, poverty or NS-SEC.

Figure 6.17 shows Class A drug use by lifestage. Respondents in the Alone again lifestage were the most likely to have used a Class A drug in the previous 12 months (8%), as they were with drug usage overall. Respondents in the older lifestages were the least likely to have taken a Class A drug over this period.

**Figure 6.16: Proportion of respondents (%) using Class A drugs (QG25)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Figure 6.17: Class A drug use (%), by lifestage (QG25)**

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

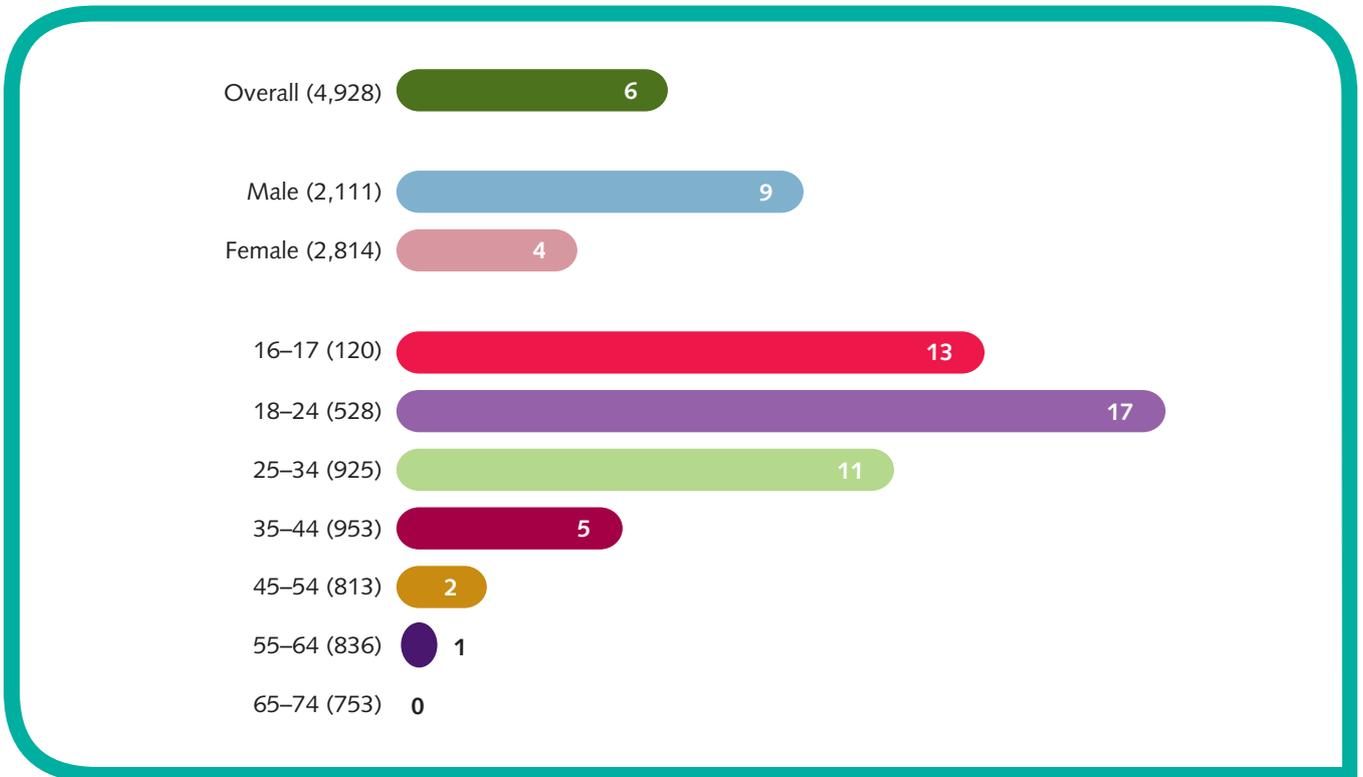
### 6.5.3 Cannabis

Cannabis was the most widely used drug, and one in 20 (6%) of the people interviewed reported using it in the previous 12 months. Similar patterns of use were evident as for 'any' drug use. Males and respondents in the youngest age groups were the most likely to state they had used cannabis in the previous 12 months (see figure 6.18). Cannabis use was highest among males aged 16–17 (22%) and over five times the rate of usage by females of the same age (4%).

### Cannabis use by lifestage

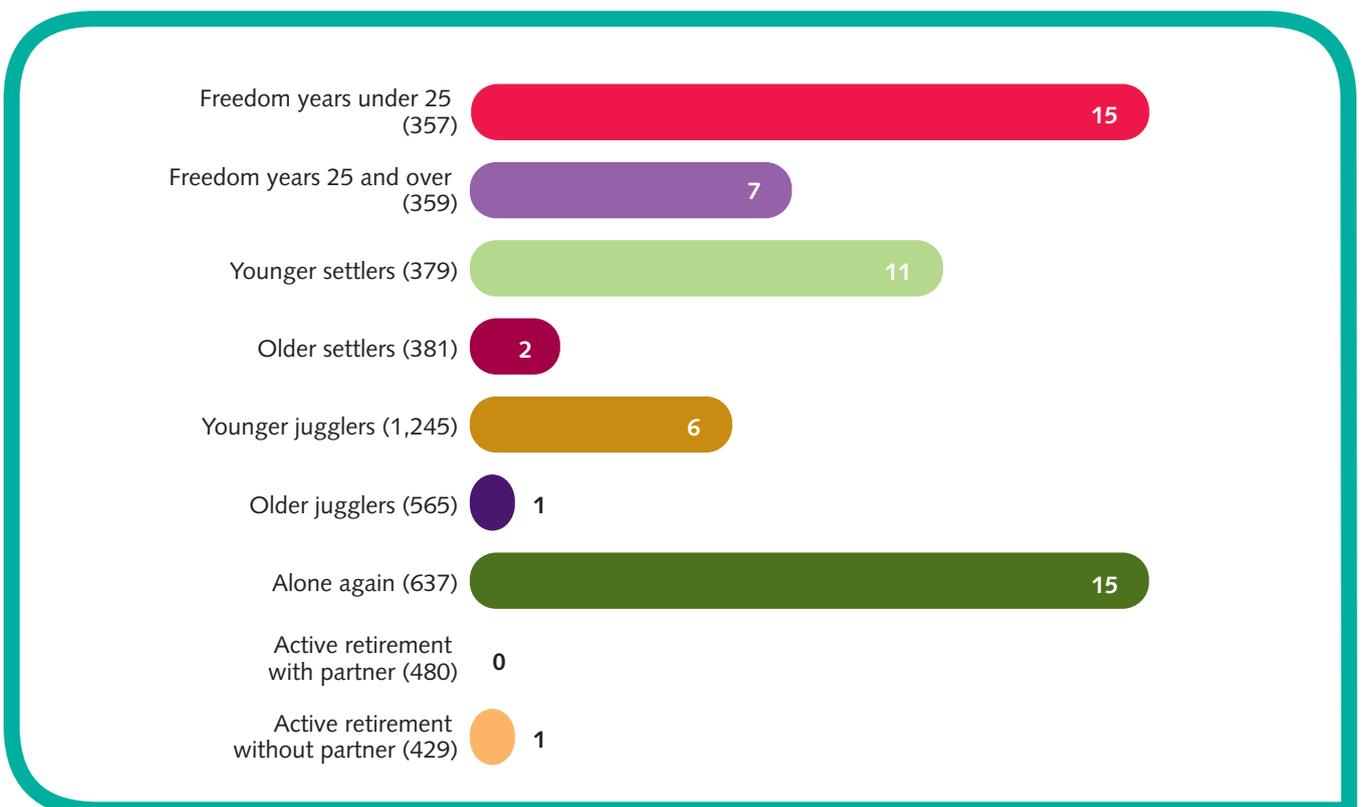
Cannabis use varied widely by lifestage (see figure 6.19). Respondents in the Alone again lifestage were the most likely to state they had used cannabis in the previous 12 months (16%). A similar proportion (15%) of respondents in the Freedom years (under 25) lifestage also reported using cannabis in the previous 12 months. Respondents in the older lifestages were the least likely to have used cannabis.

**Figure 6.18: Proportion of respondents (%) using cannabis (QG25)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Figure 6.19: Cannabis use (%) by lifestage (QG25)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

## 6.6 Sexual health

DH has a comprehensive strategy aimed at improving the sexual health of the UK population. It is working to reduce the prevalence of sexually transmitted infections and HIV, reduce unintended pregnancies (particularly teenage pregnancies) and improve the range, access to and quality of service provision.

In order to establish current behaviours and future behaviours relating to sexual health, a series of questions were asked of respondents aged 18–54. Due to the sensitivity of these questions, and to allow respondents to answer honestly and without embarrassment, these questions were asked as part of the self-completion section.

The sexual well-being section of the questionnaire covered the following areas:

- condom use in the previous year;
- reasons for using (or not using) condoms;
- whether respondents had visited a doctor/clinic for a sexual health-related matter within the previous 12 months; and
- likelihood of having sex in the next six months with a new partner and, if so, likelihood of using a condom.

Likelihood of having sex in the next six months with a new partner and likelihood of using a condom was chosen as the single measure for sexual health to be included in the overall segmentation. The findings for these questions are discussed in the following sections.

All respondents aged 18–54 were asked how likely they thought it was that they would have sex in the next six months with a new partner they had only just met.

Males were more likely to state that they probably/definitely would have sex with a new partner in the next six months (see table 6.8), as were respondents in the youngest age categories.

Almost three in ten (27%) people aged 18–24 thought they probably/definitely would have sex with a new partner in the next six months, and again this was highest among males (33%).

**Table 6.8: Likelihood of having sex (%) with a new partner in the next six months (QG30a)**

	Proportion
<b>Overall</b>	<b>10</b>
Male (2,111)	13
Female (2,814)	7
18–24 (528)	27
25–34 (925)	17
35–44 (953)	8
45–54 (813)	8
Males 18–24 (213)	33
Females 18–24 (314)	22

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

All respondents who stated they were likely to have sex with a new partner in the next six months were asked how likely it was that they would use a condom. Overall, 3% of respondents said they probably would not or definitely would not use a condom if they were to have sex with a new partner or someone they had only just met in the next six months. Due to the very small sample size it was not possible to do detailed analysis of this behaviour.

However, it is worth noting that respondents in the Alone again lifestage were the most likely to say they would have unprotected sex with a new partner in the next six months (6%).

### 6.7 Combinations of behaviours

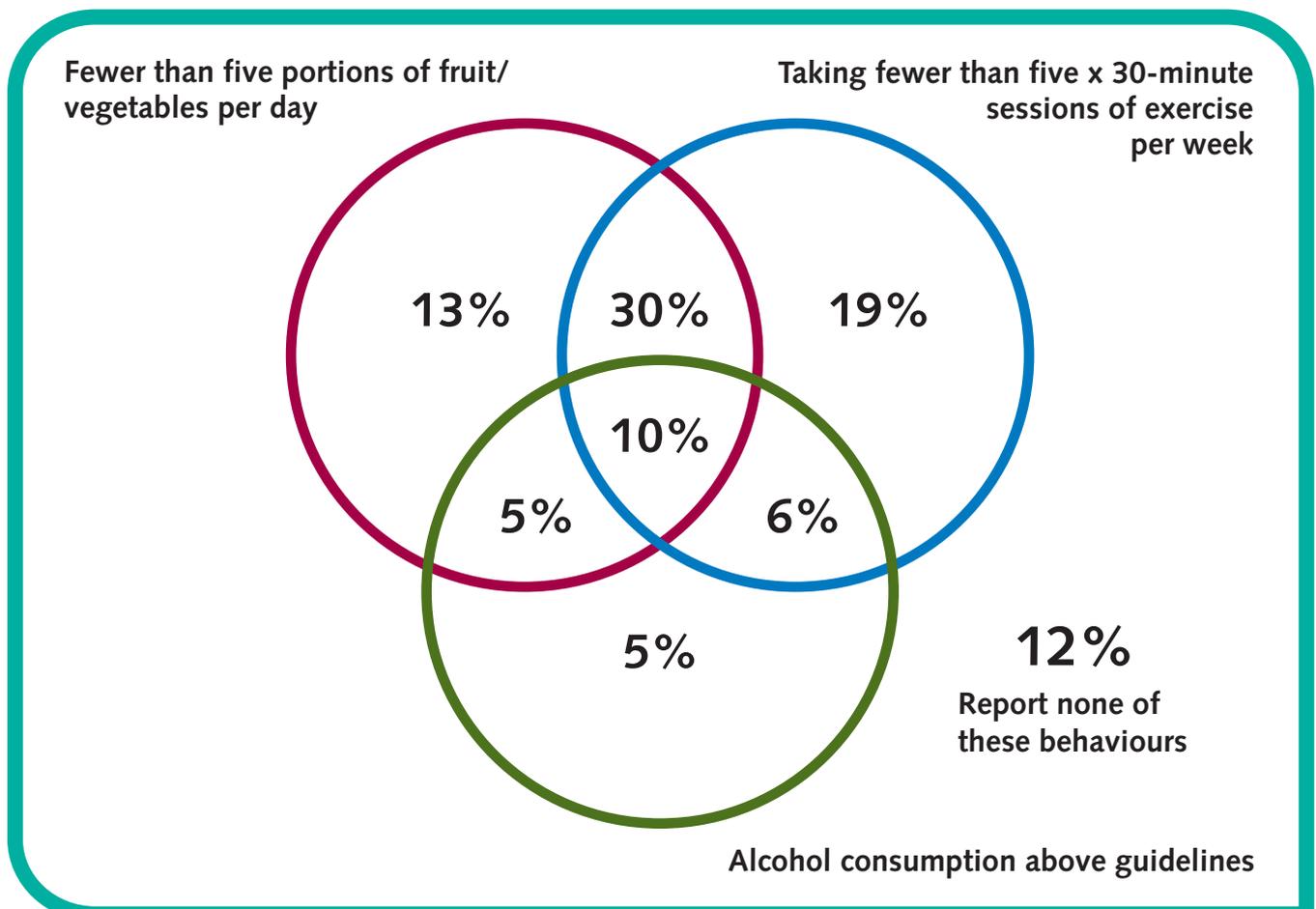
Prior to this study very little research had been done into combinations of health behaviours: instead the focus was on individual behaviours taken in isolation, e.g. smoking, alcohol consumption, etc. The next section examines a number of key combinations of health behaviours and their prevalence by key dimension.

#### 6.7.1 Fruit/vegetable consumption, alcohol consumption and physical activity

Figure 6.20 shows prevalence of negative health behaviours, individually and in combination. Overall, 58% of all respondents were not eating five or more portions of fruit/vegetables per day, 65% were not engaging in physical activity at guideline levels and 26% were drinking more alcohol than recommended in the government guidelines.

One in ten respondents were engaging in all three of these negative health behaviours (as shown in the middle of the diagram). It is interesting to note that four in ten (40%) of

**Figure 6.20: Combinations of negative health behaviours: fruit/vegetable consumption, alcohol consumption and physical activity**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

respondents were neither eating sufficient fruit/vegetables nor taking sufficient exercise. One in seven (15%) were not eating sufficient fruit/vegetables **and** drinking alcohol above guidelines, and a similar proportion (16%) were drinking alcohol above guidelines *and* not taking sufficient exercise.

Table 6.9 shows the proportions within each motivation segment exhibiting the combinations of these negative health behaviours. While there were no significant differences in the proportions of segment members exhibiting all three negative health behaviours, those in the Unconfident Fatalist and Live for Today segments were more likely than average not to eat sufficient fruit/vegetables **and** not take sufficient physical exercise (46% of each segment, compared with 40% on average). This compares with 36% of Hedonistic Immortals and Balanced Compensators and 37% of Health-conscious Realists.

Conversely, Health-conscious Realists (14%), Hedonistic Immortals (14%) and Balanced Compensators (12%) were more likely than Live for Today's (9%) or Unconfident Fatalists (8%) to exhibit **none** of these negative health behaviours.

Table 6.10 shows how the combination behaviours break down by deprivation group, and broadly demonstrates that the more positive combinations of behaviours were more prevalent within respondents in the least deprived areas, although it is interesting to note that members of the second decile (in the 20–40% least deprived areas in England) were most likely to exhibit all three positive and all three negative behaviours.

As might be expected, more positive combinations of these health behaviours were exhibited by members of the more motivated segments in least deprived areas: for example, Health-conscious Realists (16%) and Balanced

**Table 6.9: Combinations of negative health behaviours: fruit/vegetable consumption, alcohol consumption and physical activity by motivation segment (%)**

Negative health behaviour			Motivation segment					
Fruit/vegetables	Physical activity	Alcohol consumption	All respondents	Hedonistic Immortals	Live for Today's	Unconfident Fatalists	Health-conscious Realists	Balanced Compensators
Y	Y	Y	10	11	11	11	10	8 <sup>^</sup>
Y	Y	N	30	26 <sup>^</sup>	35 <sup>*</sup>	36 <sup>*</sup>	26 <sup>^</sup>	28
Y	N	Y	5	5	8 <sup>*</sup>	4	4	4
N	Y	Y	6	8 <sup>*</sup>	5	5	7	7
Y	N	N	13	11	15 <sup>*</sup>	12	12	15
N	Y	N	19	21	15 <sup>^</sup>	19	23	19
N	N	Y	5	5	3 <sup>^</sup>	4	6	6
N	N	N	12	14	9 <sup>^</sup>	8 <sup>^</sup>	14 <sup>*</sup>	12
Weighted base			4,926	850	1,124	767	971	780
Unweighted base			4,926	597	1,222	980	866	764

The % indicated with \* shows it is statistically significantly (95%) greater than the average and with ^ shows where the percentage is significantly less than the average.

**Table 6.10: Combinations of negative health behaviours: fruit/vegetable consumption, alcohol consumption and physical activity by deprivation (%)**

Negative health behaviour			Deprivation						
Fruit/ vegetables	Physical activity	Alcohol consumption	All respondents	Least deprived 1	2	3	4	5	Most deprived 6
Y	Y	Y	10	11	12	10	9	10	10
Y	Y	N	30	24 <sup>^</sup>	26 <sup>^</sup>	28	34 <sup>*</sup>	39 <sup>*</sup>	40 <sup>*</sup>
Y	N	Y	5	5	4	5	7 <sup>*</sup>	3	6
N	Y	Y	6	9 <sup>*</sup>	9 <sup>*</sup>	6	5	3 <sup>^</sup>	3 <sup>^</sup>
Y	N	N	13	10 <sup>^</sup>	10 <sup>^</sup>	14	16 <sup>*</sup>	15	17 <sup>*</sup>
N	Y	N	19	23 <sup>*</sup>	20	22 <sup>*</sup>	16	16	14 <sup>^</sup>
N	N	Y	5	6	5	4	5	5	2 <sup>^</sup>
N	N	N	12	12	14	13	9 <sup>^</sup>	10	9 <sup>^</sup>
Weighted base			4,926	914	895	910	896	442	432
Unweighted base			4,926	470	520	603	539	343	1954

The % indicated with \* shows it is statistically significantly (95%) greater than the average and with ^ shows where the percentage is significantly less than the average.

Compensators (16%) in the least deprived areas were more likely than average to exhibit none of the three negative health behaviours (see table in appendix 14 for full details). However, given the inclusion of alcohol consumption in the analysis, and bearing in mind the fact that those in the least deprived areas are more likely to drink more than the recommended guidelines of alcohol, it is not surprising that members of the least motivated segments in the least deprived areas were most likely to exhibit all three negative behaviours (12% each of Unconfident Fatalists, Live for Today's and Hedonistic Immortals in the least deprived areas).

Table 6.11 shows the breakdown of these negative health behaviours by lifestage and shows that Younger settlers (13%) and Alone against (12%) are most likely to exhibit all three negative health behaviours, and those in Active retirement without partner (16%) and

Younger and Older jugglers (13% and 14%, respectively) are most likely to exhibit none of the three negative behaviours.

### 6.7.2 Alcohol consumption, smoking and cannabis

The prevalence of these three behaviours is shown in figure 6.21. Because of the fairly low prevalence of the three behaviours, the proportions are fairly low, though 1% of all respondents participated in all three negative health behaviours. Overall, 58% of all respondents did not smoke, drink more alcohol than recommended or take cannabis in the previous 12 months.

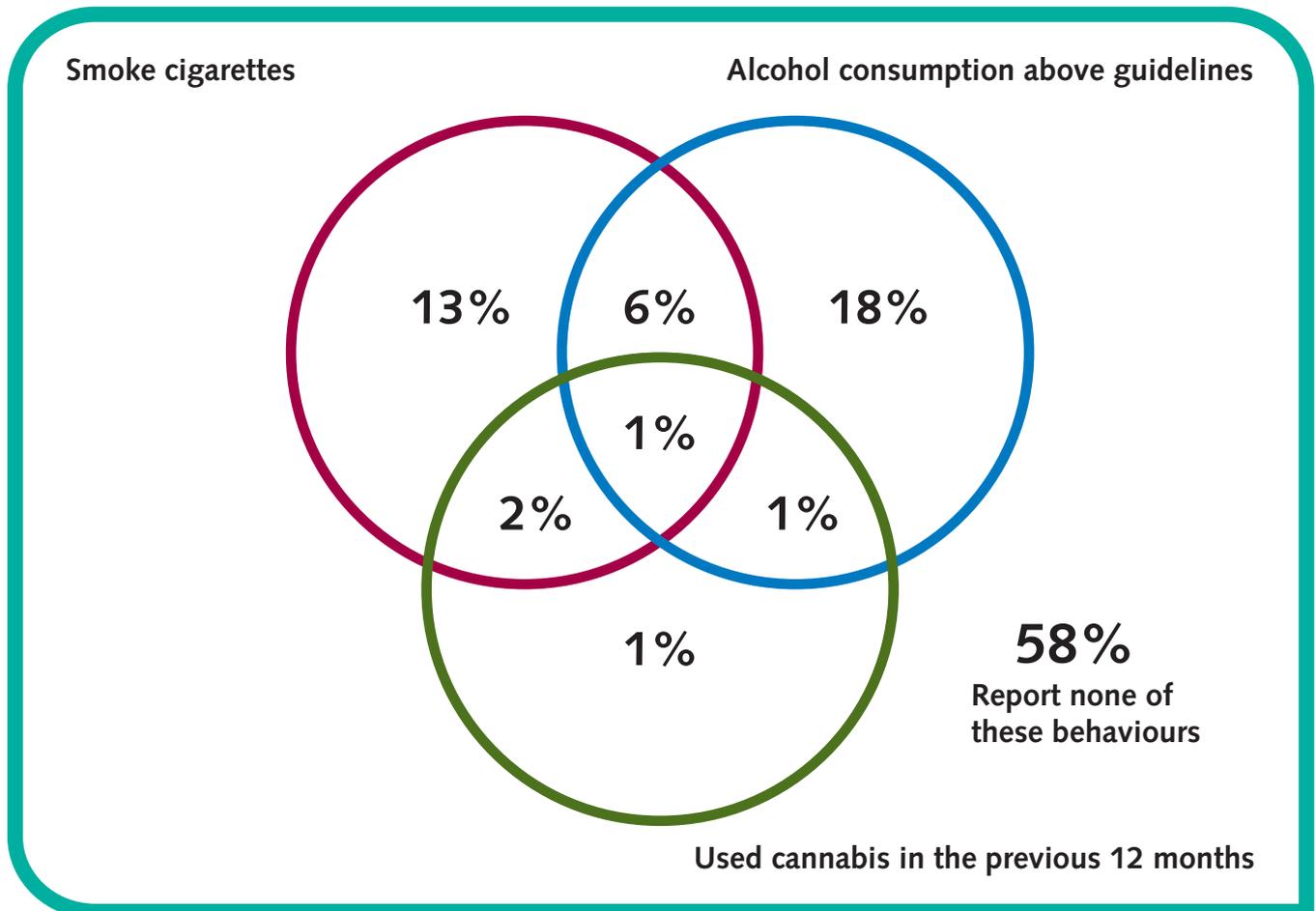
Members of the Hedonistic Immortals and Live for Today segments were the most likely to have undertaken all three unhealthy behaviours, though it should be noted that the proportion having done so is still low (2% of

**Table 6.11: Combinations of negative health behaviours: fruit/vegetable consumption, alcohol consumption and physical activity by lifestage (%)**

Negative health behaviour			Lifestage									
Fruit/vegetables	Physical activity	Alcohol consumption	All respondents	Freedom years under 25	Freedom years 25 and over	Younger settlers	Older settlers	Younger jugglers	Older jugglers	Alone again	Active retirement with partner	Active retirement without partner
Y	Y	Y	10	11	8	13*	11	10	9	12	10	7^
Y	Y	N	30	31	45*	35*	25^	30	25^	29	28	33
Y	N	Y	5	8*	4	4	4	6	5	8*	2^	2^
N	Y	Y	6	5	6	5	7	5	9*	6	8	8
Y	N	N	13	16	12	14	14	15*	14	10^	8^	7^
N	Y	N	19	15	14^	16	20	17	21	19	30*	24*
N	N	Y	5	5	0^	5	8*	4	4	6	6	4
N	N	N	12	10	11	9	11	13	14	12	9^	16*
Weighted base			4,926	456	257	422	388	1,159	728	400	402	201
Unweighted base			4,926	294	313	362	347	1,117	513	581	436	392

The % indicated with \* shows it is statistically significantly (95%) greater than the average and with ^ shows where the percentage is significantly less than the average.

Figure 6.21: Combinations of negative health behaviours: alcohol consumption, smoking and cannabis



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

each group had done so) (see table 6.12). Prevalence was highest among Hedonistic Immortals and Unconfident Fatalists in the most deprived areas (4%, see appendix 14).

Those in the most deprived areas were also more likely than average to have done so (3% compared with 1% of those in the three least deprived IMD groups) (see table 6.13). There was a clear relationship between low deprivation and exhibiting **none** of the three negative health behaviours, ranging from three-fifths of those in the least deprived quintiles to half of those in the most deprived decile.

It is perhaps unsurprising to note that members of the younger lifestages were more likely than average to exhibit all three negative behaviours

(see table 6.14). Four per cent of those in the Freedom years aged under 25 exhibited all three negative health behaviours, though it is interesting to note that those in the Alone again lifestage (6%) were the most likely to do so. The Alone agains were also least likely to exhibit none of the three negative behaviours (47% compared with 58% on average).

It is also interesting to note the key differences in behaviour between the two retired lifestages: while equally likely to exhibit none of the negative health behaviours, it is interesting to note that those with a partner are more likely to drink more than the guidelines (25% compared with 19% of those without a partner), and those without are more likely to smoke at all (21% compared with 9% of those with a partner).

**Table 6.12: Combinations of negative health behaviours: alcohol consumption, smoking and cannabis by motivation segment (%)**

Negative health behaviour			Motivation segment					
Smoke	Alcohol consumption	Used cannabis	All respondents	Hedonistic Immortals	Live for Today's	Unconfident Fatalists	Health-conscious Realists	Balanced Compensators
Y	Y	Y	1	2*	2*	1	1	1
Y	Y	N	6	5	9*	7	4^	4^
Y	N	Y	2	2	3*	3*	1^	1
N	Y	Y	1	2*	0^	2*	0^	1
Y	N	N	13	8^	18*	18*	10^	10^
N	Y	N	18	20	15^	15^	21*	20
N	N	Y	1	3*	1	1	1	1
N	N	N	58	57	51^	54^	63*	62*
Weighted base			4,926	850	1,124	767	971	780
Unweighted base			4,926	597	1,222	980	866	764

The % indicated with \* shows it is statistically significantly (95%) greater than the average and with ^ shows where the percentage is significantly less than the average.

**Table 6.13: Combinations of negative health behaviours: alcohol consumption, smoking and cannabis by deprivation (%)**

Negative health behaviour			Deprivation						
Smoke	Alcohol consumption	Used cannabis	All respondents	Least deprived 1	2	3	4	5	Most deprived 6
Y	Y	Y	1	1	1	1	2*	1	3*
Y	Y	N	6	5	4^	5	7	10*	8*
Y	N	Y	2	0^	2	2	2	3	4*
N	Y	Y	1	0^	1	1	1	4*	1
Y	N	N	13	7^	9^	12	16*	19*	24*
N	Y	N	18	25*	23*	18	16	6^	9^
N	N	Y	1	2*	1	1	2*	1	1
N	N	N	58	60	59	61*	53^	56	50^
Weighted base			4,926	914	895	910	896	442	432
Unweighted base			4,926	470	520	603	539	343	1,954

The % indicated with \* shows it is statistically significantly (95%) greater than the average and with ^ shows where the percentage is significantly less than the average.

**Table 6.14: Combinations of negative health behaviours: alcohol consumption, smoking and cannabis by lifestage (%)**

Negative health behaviour			Lifestage									
Smoke	Alcohol consumption	Used cannabis	All respondents	Freedom years under 25	Freedom years 25 and over	Younger settlers	Older settlers	Younger jugglers	Older jugglers	Alone again	Active retirement with partner	Active retirement without partner
Y	Y	Y	1	4*	2	1	0^	1	0^	6*	0^	0^
Y	Y	N	6	7	5	6	4	8*	5	9*	1^	7
Y	N	Y	2	3	2	4*	0^	3*	0^	4*	0^	1
N	Y	Y	1	5*	0^	1	1	0^	0^	3*	0^	0^
Y	N	N	13	9^	17*	10	15	14	15*	17*	8^	13
N	Y	N	18	12^	12^	19	26*	17	22	13^	24*	12^
N	N	Y	1	4*	2	4*	1	1	0^	2	0^	0^
N	N	N	58	57	60	55	54	56	58	47^	66*	66*
Weighted base			4,926	456	257	422	388	1,159	728	400	402	201
Unweighted base			4,926	294	313	362	347	1,117	513	581	436	392

The % indicated with \* shows it is statistically significantly (95%) greater than the average and with ^ shows where the percentage is significantly less than the average.

### 6.7.3 Fruit/vegetable consumption, physical activity, alcohol consumption and smoking

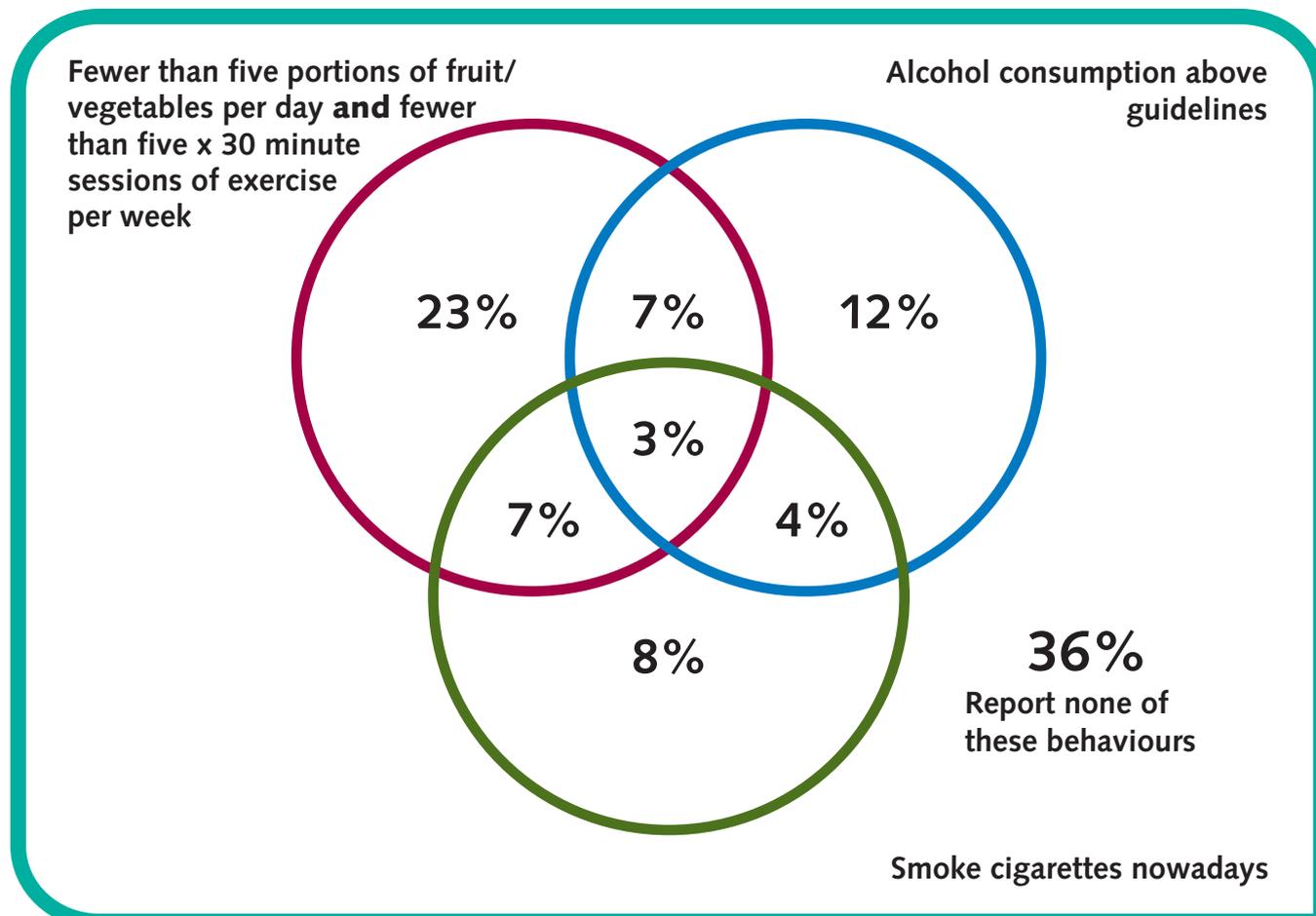
Figure 6.22 shows the prevalence of a further combination of health behaviours. The three circles shown on the chart denote the following negative health behaviours:

- a combination of eating fewer than five portions of fruit/vegetables per day **and** taking fewer than five x 30-minute sessions of exercise per week;
- smoking cigarettes nowadays; and
- drinking more alcohol than recommended in government guidelines.

Overall, 3% of all respondents were classified as exhibiting all of these negative health behaviours, although 36% did not exhibit any. The most common combinations were fruit/vegetables and physical activity with smoking (10%) or drinking alcohol (also 10%). Seven per cent of all respondents smoked cigarettes and drank more alcohol than recommended in the guidelines.

Table 6.15 shows that members of the less motivated segments and, in particular, the Live for Today segment were most likely to exhibit all four negative behaviours (5% of those in the Live for Today segment), compared with 1–2% of the Health-conscious Realists or Balanced Compensators.

**Figure 6.22: Combinations of negative health behaviours: fruit/vegetable consumption, physical activity, alcohol consumption and smoking**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Table 6.15: Combinations of negative health behaviours: fruit/vegetable consumption, physical activity, alcohol consumption and smoking by motivation segment (%)**

Negative health behaviour			Motivation segment					
Fruit/ vegetables AND physical activity	Alcohol consumption	Smoke	All respondents	Hedonistic Immortals	Live for Todays	Unconfident Fatalists	Health- conscious Realists	Balanced Compensators
Y	Y	Y	3	3	5*	3	2	1^
Y	Y	N	7	8	7	7	8	7
Y	N	Y	7	5^	11*	11*	5^	4^
N	Y	Y	4	5	6*	4	2^	3
Y	N	N	23	22	24	26*	20^	24
N	Y	N	12	14	9^	9^	14*	14
N	N	Y	8	6	10*	11*	5^	8
N	N	N	36	39	29^	30^	43*	39
Weighted base			4,926	850	1,124	767	971	780
Unweighted base			4,926	597	1,222	980	866	764

The % indicated with \* shows it is statistically significantly (95%) greater than the average and with ^ shows where the percentage is significantly less than the average.

**Table 6.16: Combinations of negative health behaviours: fruit/vegetable consumption, physical activity, alcohol consumption and smoking by deprivation (%)**

Negative health behaviour			Deprivation						
Fruit/ vegetables AND physical activity	Alcohol consumption	Smoke	All respondents	Least deprived 1	2	3	4	5	Most deprived 6
Y	Y	Y	3	2	2	3	3	5*	6*
Y	Y	N	7	9	9	7	6	5	5^
Y	N	Y	7	3^	5	6	9	12*	14*
N	Y	Y	4	4	3	3	6	6	5
Y	N	N	23	21	21	22	25*	26	25*
N	Y	N	12	16*	15*	12	12	5^	5^
N	N	Y	8	5^	6	7	10	10	14*
N	N	N	36	41*	39	40*	31^	32	26^
Weighted base			4,926	914	895	910	896	442	432
Unweighted base			4,926	470	520	603	539	343	1,954

The % indicated with \* shows it is statistically significantly (95%) greater than the average and with ^ shows where the percentage is significantly less than the average.

**Table 6.17: Combinations of negative health behaviours: fruit/vegetable consumption, physical activity, alcohol consumption and smoking by lifestage (%)**

Negative health behaviour			Lifestage									
Fruit/vegetables AND physical activity	Alcohol consumption	Smoke	All respondents	Freedom years under 25	Freedom years 25 and over	Younger settlers	Older settlers	Younger jugglers	Older jugglers	Alone again	Active retirement with partner	Active retirement without partner
Y	Y	Y	3	4	3	5 <sup>^</sup>	2	3	2	5 <sup>*</sup>	0 <sup>^</sup>	4
Y	Y	N	7	6	5	9	9	7	0 <sup>^</sup>	7	10 <sup>*</sup>	3 <sup>^</sup>
Y	N	Y	7	6	14 <sup>*</sup>	8	5	8	0 <sup>^</sup>	9 <sup>*</sup>	4 <sup>^</sup>	9
N	Y	Y	4	6	4	2 <sup>^</sup>	2 <sup>^</sup>	5	3	10 <sup>*</sup>	1 <sup>^</sup>	4
Y	N	N	23	26	30 <sup>*</sup>	27	19	22	18 <sup>*</sup>	20	25	25
N	Y	N	12	12	7 <sup>^</sup>	11	18 <sup>*</sup>	10 <sup>^</sup>	15 <sup>*</sup>	9 <sup>^</sup>	15 <sup>*</sup>	10
N	N	Y	8	6	6	7	10	10 <sup>*</sup>	8	12 <sup>*</sup>	4 <sup>^</sup>	6
N	N	N	36	37	32	32	36	35	40 <sup>*</sup>	28 <sup>^</sup>	42 <sup>*</sup>	41 <sup>*</sup>
Weighted base			4,926	456	257	422	388	1,159	728	400	402	201
Unweighted base			4,926	294	313	362	347	1,117	513	581	436	392

The % indicated with \* shows it is statistically significantly (95%) greater than the average and with ^ shows where the percentage is significantly less than the average.

In addition, those in the most deprived areas were most likely to exhibit all four negative behaviours (5–6% of those in the 20% most deprived areas in England, compared with 2–3% of those in less deprived areas) (see table 6.16).

Combining motivation and environment further polarises results, with 7% of Unconfident Fatalists and 6% of Live for Todays in the most deprived areas exhibiting all four negative health behaviours. Conversely, none of the Health-conscious Realists or Balanced Compensators in the least deprived areas exhibited all four negative behaviours (see appendix 14).

Examining these behaviours by lifestage shows that, while there are no very clear patterns, members of the younger lifestages tend to be more likely than their older counterparts to exhibit all four negative behaviours. In addition, members of the Active retirement with partner lifestage were less likely than their counterparts without partners to exhibit all four negative behaviours (0.5% with a partner, 4% without a partner), but no more likely to exhibit **none** of the negative behaviours (42% with partner, 41% without partner) (see table 6.17).

## 6.8 Health states

### 6.8.1 Mental health

Over the course of a lifetime, around one in four people in the UK will have a mental health problem that affects their daily life, relationships or physical health. Without care and treatment, mental health problems can have a serious effect on the individual and those around them. Most of the 4,000 suicides

committed each year in England are attributed to depression.<sup>55</sup>

The General Health Questionnaire is a tool widely used to assess general well-being and distress. There are several different versions available, but the 12-item version is most widely used and was considered to be most appropriate for this survey. Respondents' answers are scored as positive, negative or neutral. If a respondent has up to three negative answers they are classified as having a low GHQ score. If they have four or more negative answers they are classified as having a high GHQ score, and this is considered a possible indicator of a mental health condition.

GHQ score was chosen as the mental health behaviour measure for inclusion within the segmentation.

The General Health questions were asked as part of the self-completion section due to the sensitivity of their nature. Respondents were given the option of not answering any question they preferred not to answer.

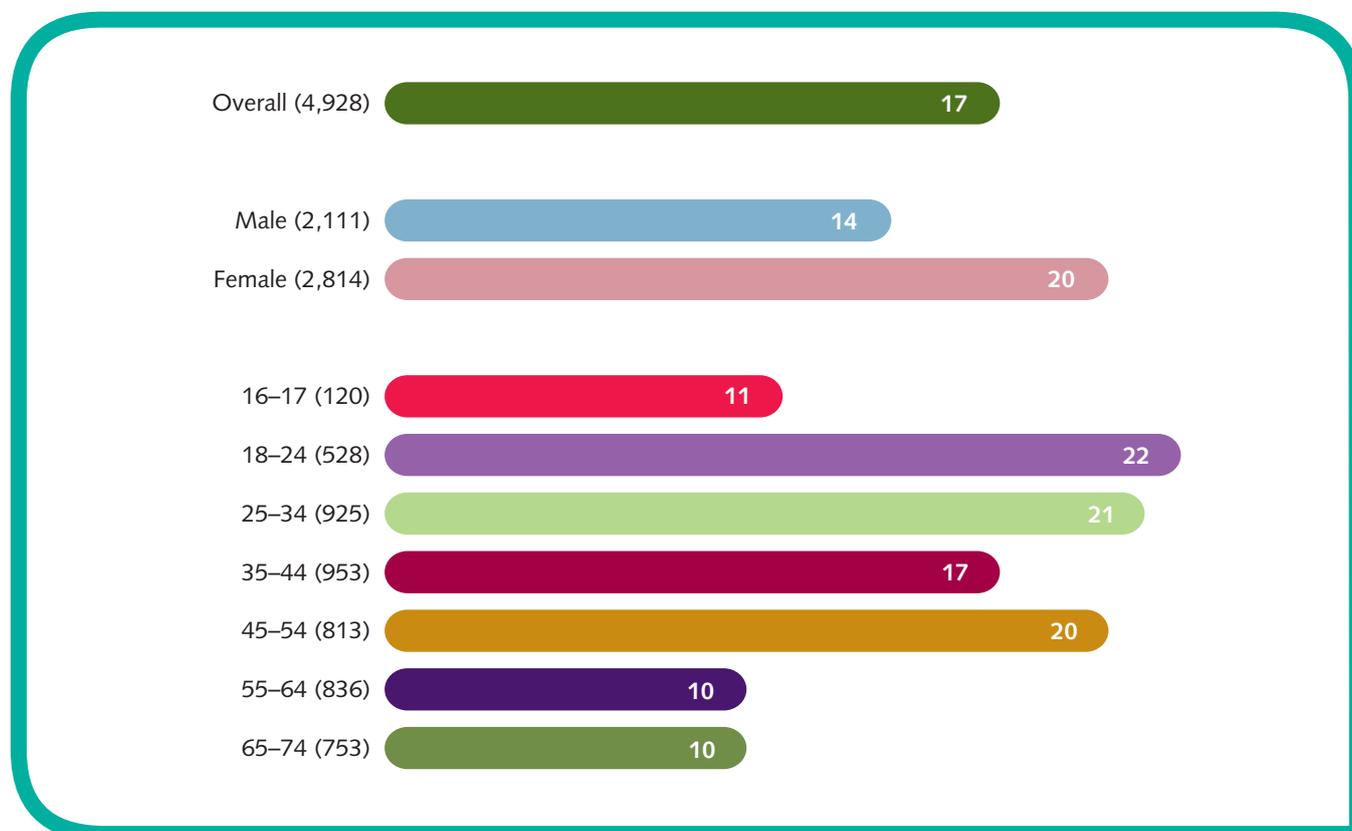
One in six (17%) respondents were classified as having a high GHQ score, which is effectively the same as the findings from the Psychiatric Morbidity survey (2000), where 16% of the population were identified as having a mental health condition (equivalent of a high GHQ score).

Women (20%) and respondents in the younger age categories (18–34) were the most likely to have high GHQ scores (see figure 6.23). In particular, almost three in ten women (28%) aged 18–34 had a high GHQ score.

In addition to age and gender, ethnicity had an effect on GHQ scores. Over a quarter of respondents (26%) from ethnic minority

55. DH, *National Service Framework for Mental Health: Modern Standards and service models*, HMSO, 1999.

**Figure 6.23: Proportion of respondents (%) with a high GHQ score (overall, gender and age) (QG35–QG45a)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

backgrounds were classified as having a high GHQ score, which was similar to the findings of the 1999 GHS Ethnic Boost survey, and is significantly higher than for White respondents (16%). Over half of respondents (52%) from mixed ethnic backgrounds and a quarter of respondents (24%) from Black or Black British backgrounds had high GHQ scores. However, it is worth noting that the age profiles for these two ethnic groups are lower than the general population and, as already noted, younger people were more likely to have a higher GHQ score.

Respondents in single-person households (21%) or who were single parents (23%) appeared to be more likely to be classified as having high GHQ scores (see table 6.18). However, when standardised for gender,

there were no significant differences, as females were more likely to be living alone or as single parents.

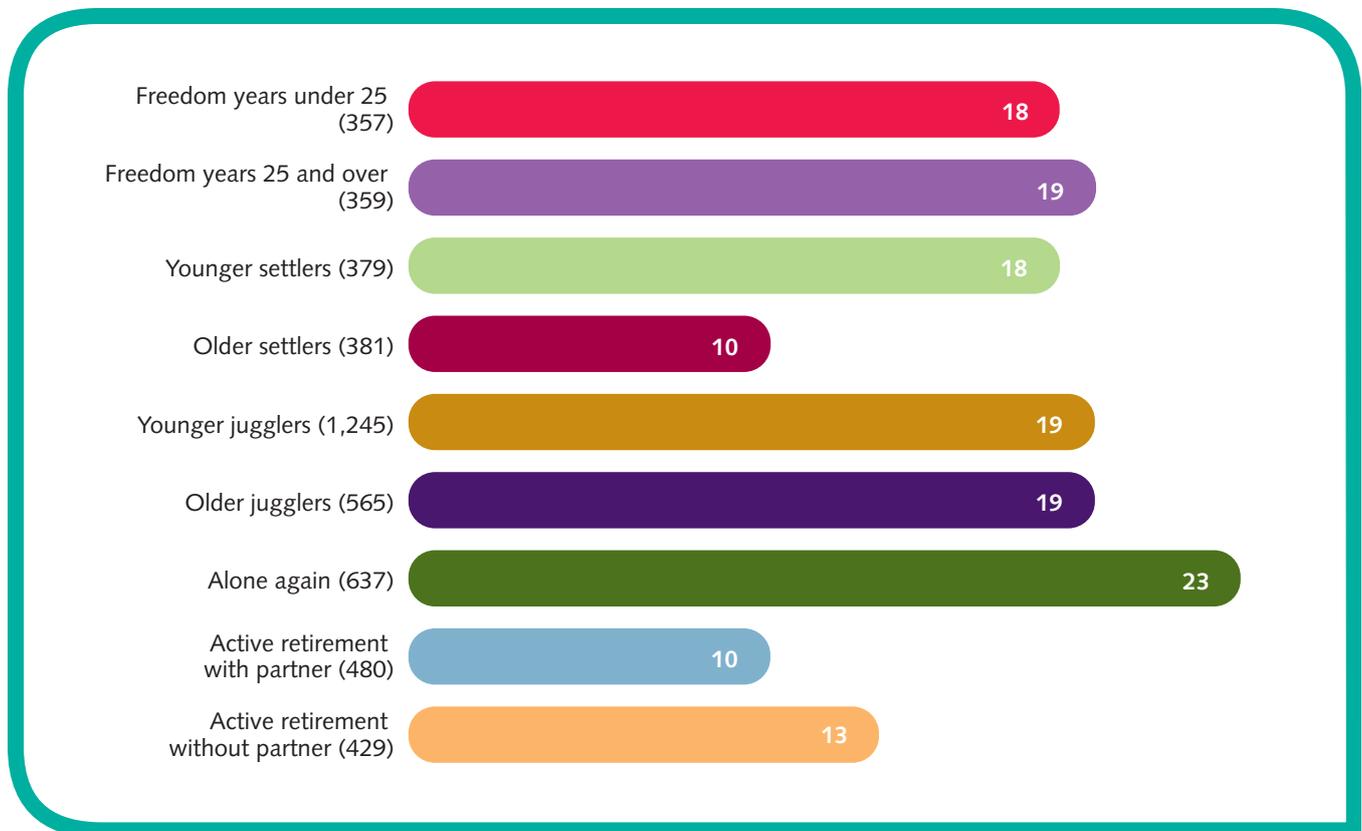
A quarter (25%) of respondents living in poverty had high GHQ scores.

**Table 6.18: Proportion of respondents (%) with high GHQ score (QG35–QG45a)**

	Proportion
Single-adult household (1,247)	21
Multiple-adult household (2,008)	16
Single-adult household with dependent children (468)	23

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Figure 6.24: Proportion of respondents (%) with a high GHQ score by lifestage (QG35–QG45a)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

### GHQ scores by lifestage

The proportion of respondents with high GHQ scores varied across lifestage (see figure 6.24). Respondents in the Alone again stage were the most likely to have a high GHQ score (23%) and those in the Older settler and Active retirement lifestages were the least likely (around one in ten). Across the rest of the lifestages approximately one in five respondents had a high GHQ score.

### 6.8.2 Body mass index

Having a high BMI score or being overweight/obese is associated with many illnesses such as diabetes, cancer and heart and liver disease, and it is directly related to increased mortality and lower life expectancy. The more obese

somebody becomes the more the risks increase.

Currently, almost two-thirds of adults and a third of children are obese or overweight<sup>56</sup> and it is anticipated that, without action, by 2050 these figures will rise to nine out of ten adults and two-thirds of children.<sup>57</sup> The implications of this are severe, not only for individuals' health, but also because of the pressure that these illnesses will place on the NHS.

A healthy body weight is maintained through a balanced diet and regular exercise, and there is guidance on how exercise and diet can contribute towards general well-being and, more specifically, a healthy weight and BMI. However, the problem for many people is that

56. Health Survey for England 2005 Latest Trends, NHS Information Centre, December 2006.

57. Foresight, *Tackling Obesities: Future Choices – Project Report*, Government Office for Science, October 2007.

the energy they consume through food is often more than the energy they expend through exercise, which can result in an increase in weight/BMI.

BMI score was chosen to be an indicator of healthy weight to be included within the segmentation.

BMI is a statistical measurement that compares a person's weight and height. Though it does not actually measure the percentage of body fat, it is a useful tool to estimate a healthy body weight based on how tall a person is. Due to its ease of measurement and calculation, it is the most widely used diagnostic tool to identify obesity problems within a population. BMI is calculated using the following equation:

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height (m)}^2}$$

Once the BMI score has been calculated, a person is assigned to a weight category dependent on their score (see table 6.19).

**Table 6.19: BMI categories**

BMI category	BMI range
Underweight	<18.5
Ideal	18.5–25.0
Overweight	25.1–30.0
Obese	30.1–40.0
Very obese	>40.0

A BMI score was calculated for each respondent who provided details of their height and weight. Respondents were given the option of providing their details in either metric or imperial units. Imperial values were converted at the data-processing stage into metric values.

The vast majority of respondents (97%) provided their height information and 84% were sure that the information they had provided was correct, i.e. it was not an estimate. A similar proportion of respondents (96%) provided information on their weight, although a smaller proportion (75%) were sure that the information provided was correct. Young men aged 18–24 (19%) and respondents from Asian or Asian British (19%) or mixed ethnic backgrounds (34%) were the most likely to state they did not want to provide information on their weight.

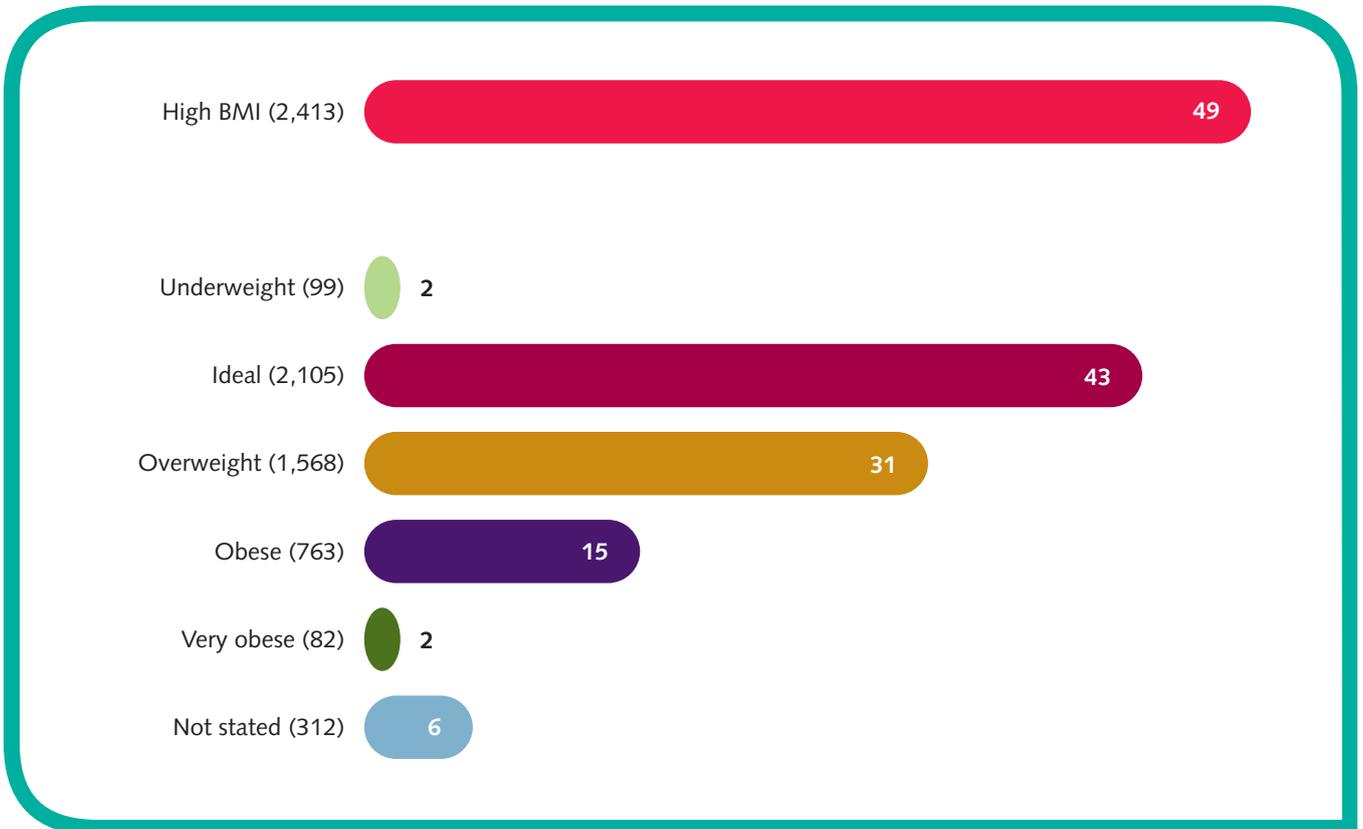
In total, BMI scores were calculated for 94% of the overall sample.

Overall, just over two in five respondents (43%) had ideal BMI scores (BMI score = 18.5–25.0) (see figure 6.25). A third of respondents (32%) were classified as overweight (BMI = 25.1–30.0) and a further one in six respondents (15%) were classified as obese (BMI = 30.1–40.0). A very small proportion of respondents were classified as underweight (BMI = <18.5) (2%) or very obese (BMI = >40.0) (2%).

Around two in five respondents (43%) had an ideal BMI, and this is higher than the HSE 2007 reported, where 34% had a normal (18.5–25.0) BMI score. The difference in findings is expected, as the HSE data was recorded by a nurse and not by respondent self-report. It is likely that respondents in this survey underestimated their weight or (less probably) overestimated their height.

Respondents who did fewer than the recommended five sessions of 30 minutes exercise or more per week were more likely to have a high BMI (50.4%) than those who did the recommended amount of exercise (45.7%).

**Figure 6.25: Overall BMI scores (%) (QG5–QG8)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Figure 6.26: Proportion of respondents (%) classified as overweight or obese by age (QG5–QG8)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

### BMI scores by key demographics

Almost half of women (49%) had an ideal BMI compared with men (37%). Men were significantly more likely to be classified as overweight (38% compared with 26% of women).

As age increases, the likelihood of becoming overweight or obese also increases (see figure 6.26). Fewer than one in five (18%) respondents aged 16–24 are overweight or obese compared with over three in five respondents (63%) aged 64–74.

BMI scores were analysed by ethnicity (see table 6.20), but few conclusions could be drawn from the data. Similar proportions of White British respondents (43%) and respondents from an ethnic minority background (47%) had an ideal BMI score. White British respondents (33%) were more likely to be overweight than respondents from ethnic minority backgrounds (23%), but respondents from ethnic minority backgrounds were the least likely to have provided the information needed to calculate their BMI score (14% not stated), and this may have affected the scores.

**Table 6.20: BMI scores by ethnicity (%) (QG5/QG8)**

BMI category	White British (4,060)	Ethnic minority (845)
Underweight	2	5
Ideal	43	47
Overweight	33	23
Obese	16	9
Very obese	2	2
Not stated	5	14

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

Respondents living in poverty were less likely to have an ideal BMI score (see table 6.21). They were more likely to be classified as underweight, although there were no differences for being overweight, obese or very obese. This is interesting as respondents living in poverty (35%) were more likely to be getting the recommended five sessions of 30 minutes or more exercise per week compared with those not living in poverty (30%). This perhaps suggests that diet has a larger impact than exercise for people living in poverty.

**Table 6.21: BMI scores for poverty (%) (QG5/QG8)**

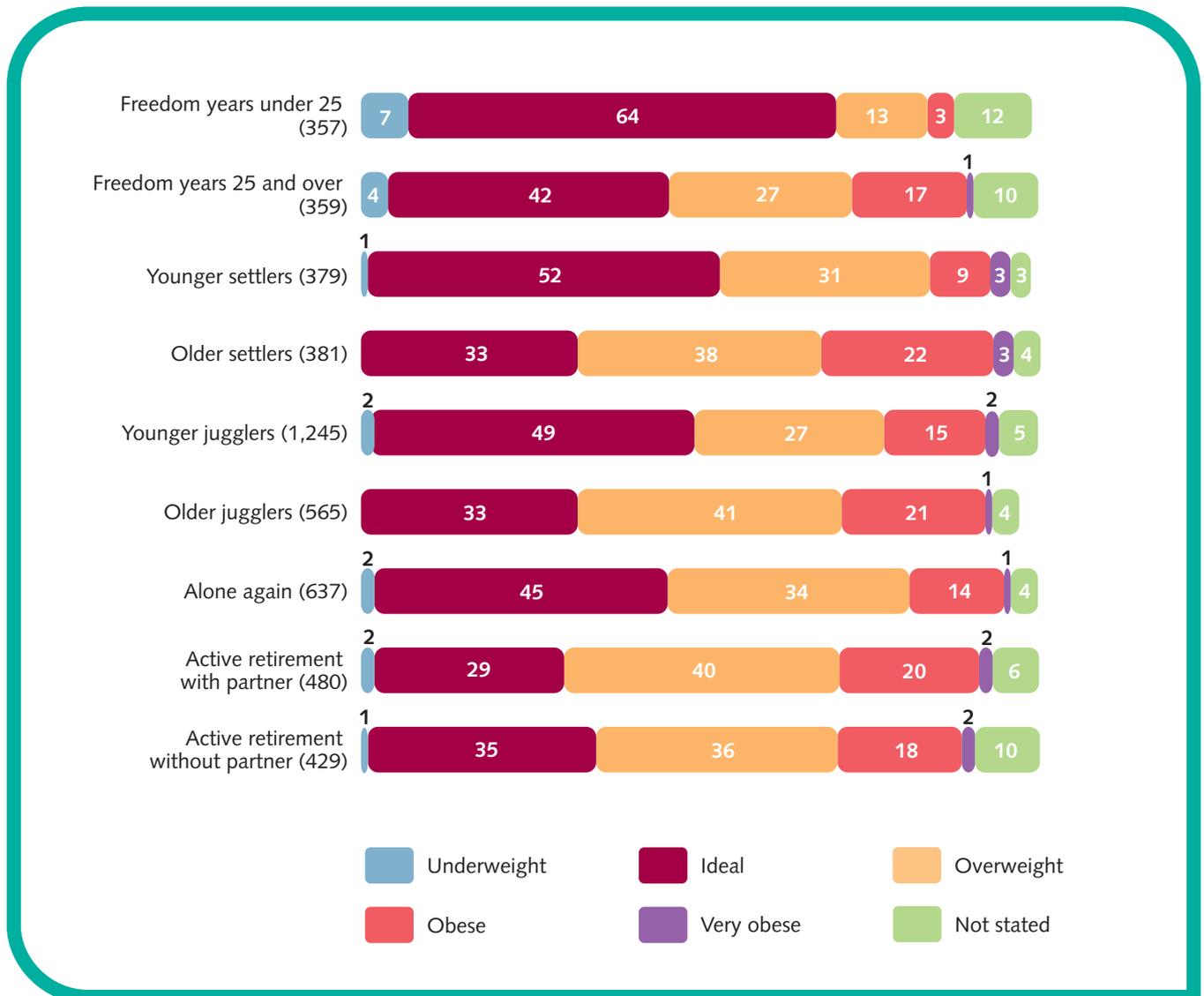
BMI category	Respondents living in poverty (1,415)	Respondents not living in poverty (2,329)
Underweight	4	1
Ideal	37	45
Overweight	30	33
Obese	19	16
Very obese	2	2
Not stated	9	3

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

### BMI by lifestage

BMI scores were analysed by lifestage and, as expected, respondents in the older age categories were the least likely to have ideal BMI scores. Figure 6.27 shows the respondents in the youngest lifestage (Freedom years under 25) were the least likely to be overweight (13%). Respondents in the Older juggler (62%), Older settler (60%) and Active retirement with partner (60%) lifestages were the most likely to be classified as obese.

**Figure 6.27: BMI scores by lifestage (%) (QG5–QG8)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

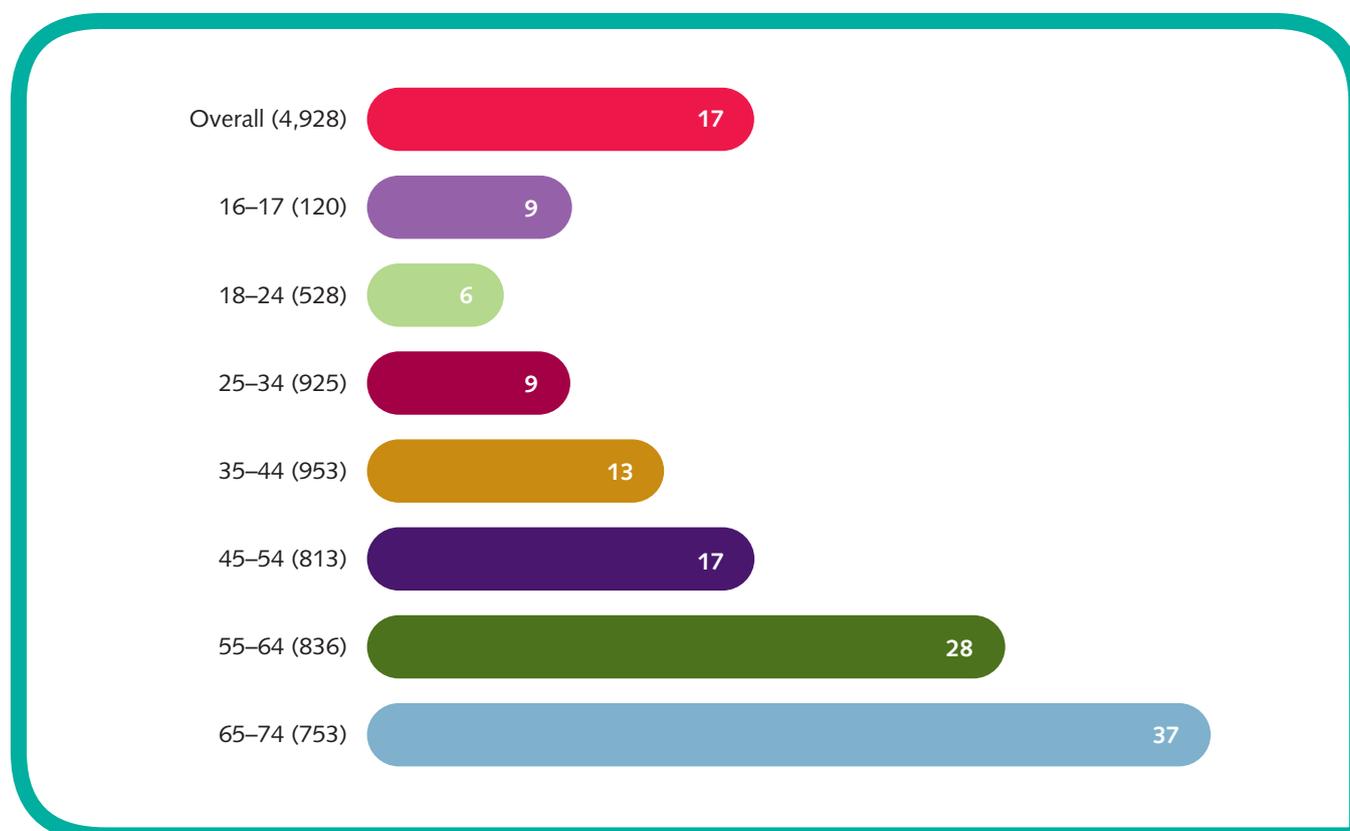
### 6.8.3 Long-term limiting illness

Long-term limiting illness (LTLI) is defined as long-standing illness, disability or infirmity that limits normal day-to-day activities such as eating, washing and walking, etc. It is estimated that 17% of the English population (aged 16–74) has an LTLI, and this equates to around 7 million people.

The effects of an LTLI are numerous and range from loss of employment, which can lead to financial hardship, to impacting on mental well-being.

The 2001 census figures show that the likelihood of having an LTLI increases with age, and this is reflected in the findings of the Healthy Foundations data. Overall, one in six respondents (17%) reported having an LTLI, with respondents aged 65–74 the most likely to report this (37%) (see figure 6.28). As the lifestages are largely driven by age, we have not analysed LTLI by lifestage.

Prevalence of LTLI increased with deprivation (see table 6.22).

**Figure 6.28: Long-term limiting illness by age (%)**

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Table 6.22: Long-term limiting illness by IMD**

IMD decile	Proportion of sample (%)
IMD 1st decile – least deprived (494)	14
2nd decile (496)	12
3rd decile (498)	11
4th decile (479)	13
5th decile (496)	23
6th decile (496)	18
7th decile (490)	18
8th decile (494)	20
9th decile (489)	18
10th decile – most deprived (494)	24

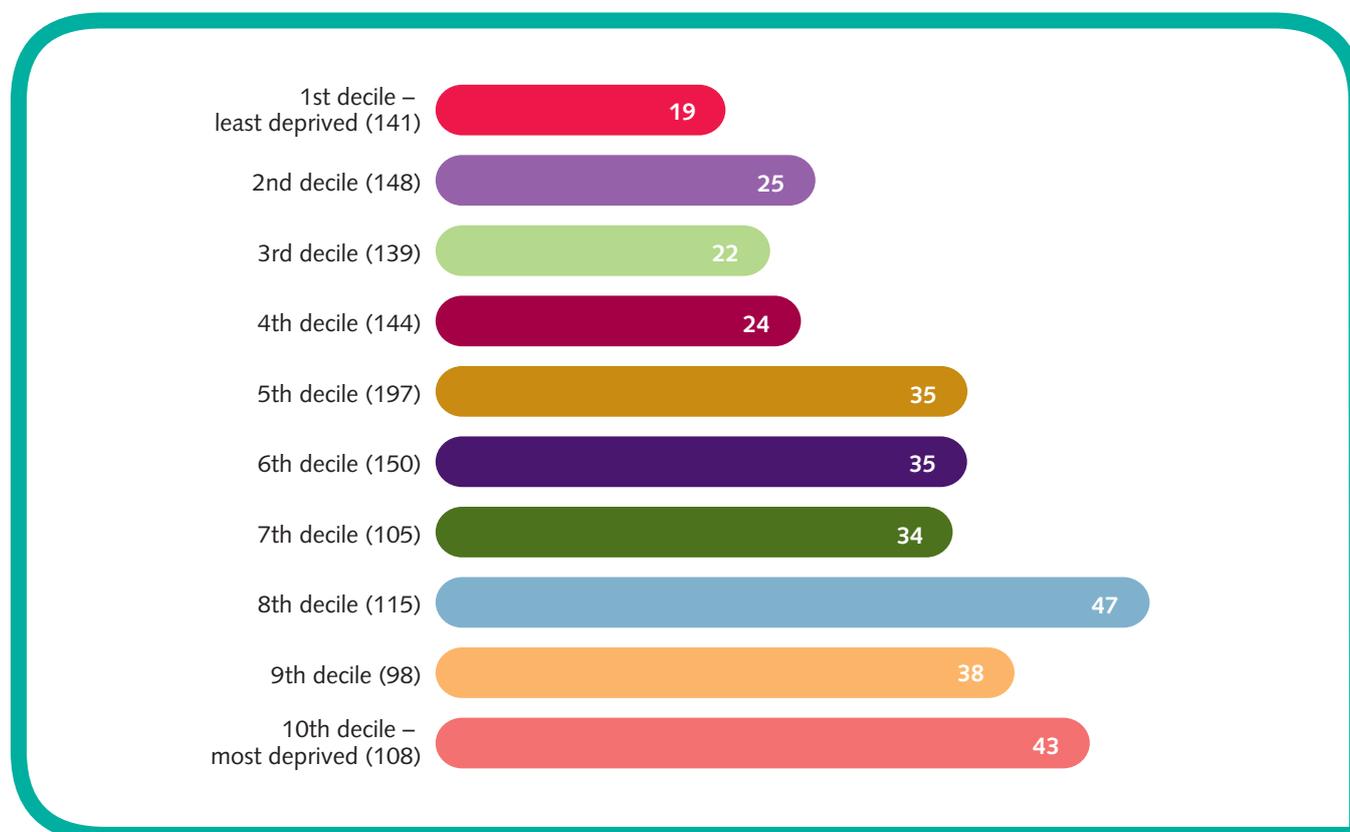
Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

Clearly, LTLI does vary by IMD (see table 6.22). However, to understand the full impact

of area-level deprivation it is necessary to control by age, as certain areas may have larger proportions of older people that would influence the overall prevalence figure. Figure 6.29 shows the proportion of respondents aged 55 or older in each IMD decile who report having an LTLI. When age is controlled for, the pattern is clear and still evident, with two-fifths (39%) of older people in the most deprived deciles (IMD deciles 6–10) reporting an LTLI, compared with a quarter (26%) of those in the least deprived deciles (IMD deciles 1–3).

Furthermore, members of the Unconfident Fatalists segment were more likely than members of other segments to say that they have an LTLI (45% compared with 13% or less of other segments) (see table 6.23). Prevalence was highest among Unconfident Fatalists in the

**Figure 6.29: Long-term limiting illness by IMD (%) in older-age respondents (55+)**



Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

most deprived areas (51% compared with 48% of those in the mid-deprivation group and 36% of those in the least deprived areas).

**Table 6.23: Any long-term limiting illness by motivation segment (%)**

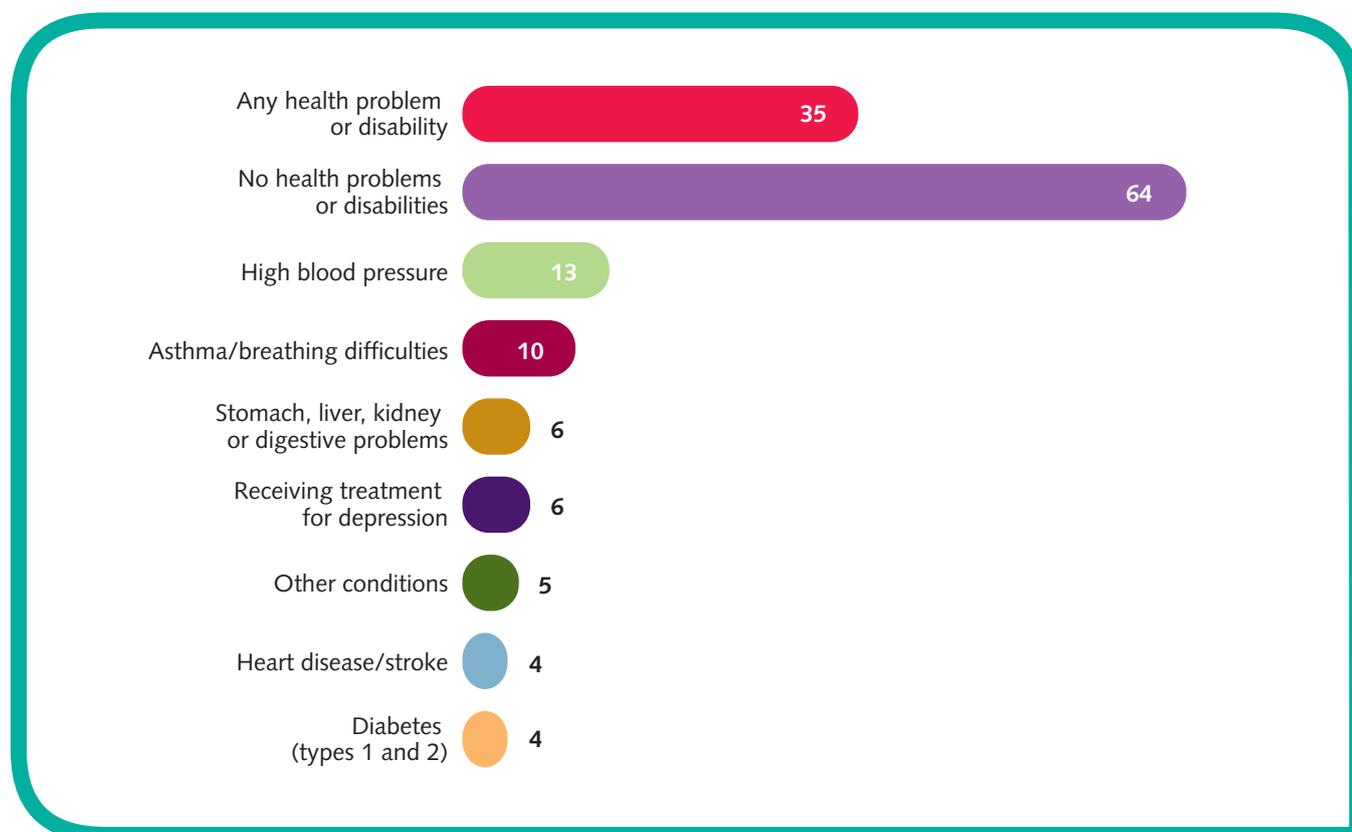
All respondents (4,928)	17
Hedonistic Immortals (652)	10
Live for Todays (1,396)	13
Unconfident Fatalists (1,101)	45
Health-conscious Realists (936)	13
Balanced Compensators (843)	8

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

In addition to LTLIs, respondents were asked whether they had any other health problems or disabilities, chosen from a list that they were shown. Responses were varied and figure 6.30

shows those mentioned as being over 3%. Around a third of respondents (35%) reported any of the listed health problems or disabilities, with the most common responses being high blood pressure (13%) and asthma or breathing difficulties (10%).

Due to the relatively small proportions reporting various health problems, subgroup analysis of individual health problems was limited. As may have been expected, respondents in the oldest age categories were the most likely to report health problems or disability: almost two-thirds (66%) of respondents aged 65–74 said they had at least one of the listed health problems, compared with one in five 18–24-year-olds (19%) (see table 6.24).

**Figure 6.30: Other health problems and disabilities (%)**

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

**Table 6.24: Proportion (%) with any health problem or disability, by age**

IMD decile	Proportion
16–17-year-olds (120)	11
18–24-year-olds (528)	19
25–34-year-olds (925)	25
35–44-year-olds (953)	28
45–54-year-olds (813)	35
55–64-year-olds (836)	50
65–74-year-olds (753)	66

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

Respondents in the older age categories (55–74) living in the most deprived areas were the most likely to report any health problem or disability: while less than half of respondents aged 55+ in the least deprived areas reported a health problem or disability, seven in ten of those living in IMD deciles 8–10 did so (see table 6.25).

**Table 6.25: Any health problem or disability by respondents aged 55+ (%)**

IMD decile	Proportion
IMD 1st decile – least deprived (141)	47
2nd decile (148)	60
3rd decile (139)	53
4th decile (144)	48
5th decile (197)	60
6th decile (150)	64
7th decile (105)	57
8th decile (115)	62
9th decile (98)	70
10th decile – most deprived (108)	70

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

Perhaps linked to their older age, lower levels of health motivation and poorer health behaviour, Unconfident Fatalists were significantly more likely than any other segment to have most of the health problems or disabilities listed: while 35% or less of respondents from the other motivation segments had any of the listed health problems or disabilities, this rose to 60% of Unconfident Fatalists (see table 6.26).

**Table 6.26: Any health problem or disability by motivation segment (%)**

All respondents (4,928)	35
Hedonistic Immortals (652)	26
Live for Today's (1,396)	32
Unconfident Fatalists (1,101)	60
Health-conscious Realists (936)	35
Balanced Compensators (843)	22

Base: All respondents (unwtd 4,928/wtd 4,928/ess 2,496)

In particular, Unconfident Fatalists were more likely than members of other segments to say

that they had many of the health problems or disabilities listed (table 6.27 shows those that were mentioned by 10% or more of any motivation segment).

The proportion of members of the Unconfident Fatalists segment who had any of the listed health problems or disabilities did not vary significantly when the segment was broken down by IMD. However, the prevalence of some individual health problems/disabilities was higher among certain segments.

- The prevalence of heart disease was slightly higher among Unconfident Fatalists in the most deprived areas (12% compared with 10% of Unconfident Fatalists in the mid-deprivation group and 8% of Unconfident Fatalists in the least deprived areas). This compares with 4% or fewer of respondents in other motivation segments saying that they had this health problem.
- In addition, Unconfident Fatalists from the most deprived areas were the most likely to say that they were receiving treatment for depression (25% of those from the most deprived areas said they were, compared with 19% of those from the mid-deprivation group and 11% from the least deprived areas). Unconfident Fatalists from the least deprived areas were still more than twice as likely as any other group to say that they were receiving treatment for depression.

## 6.9 Summary

- The Healthy Foundations survey aimed to measure how the dimensions differentiate on the key health behaviours and states, namely smoking, alcohol consumption, drug use, nutrition, physical activity and sexual health, and BMI and mental health.

**Table 6.27: Health problems or disabilities by motivation segment (%)**

	Motivation segment					
	All respondents	Hedonistic Immortals	Live for Today's	Unconfident Fatalists	Health-conscious Realists	Balanced Compensators
Any	35	26	32	60	35	22
High blood pressure	13	8	14	24	14	7
Asthma/other breathing difficulties	10	10	7	17	9	7
Receiving treatment for depression	6	2	5	17	3	4
Stomach, liver, kidney or digestive problems	6	4	5	14	6	3
Heart disease/stroke	4	1	2	10	4	1
Other conditions	5	2	4	11	4	3
None	64	73	66	38	64	77
Don't know	1	1	1	3	1	1
Weighted base	4,926	850	1,124	767	971	780
Unweighted base	4,926	597	1,222	980	866	764

- In general, prevalence measures were similar to those recorded on other similar surveys (e.g. HSE, British Crime Survey) and, where they differ, the reasons centre on slight variations in the way in which questions were asked (e.g. the need to use an abridged question set because of pressure on the interview length).
- The Healthy Foundations study also aimed to look at the prevalence of combinations of health behaviours, rather than focusing on each behaviour in isolation.
  - One in ten adults ate fewer than five portions of fruit/vegetables per day, took fewer than five sessions of 30-minutes exercise per week, and drank more than the recommended amount of alcohol. Those in the Younger settlers and Alone again lifestages were more likely than average to exhibit all three unhealthy behaviours.
  - One per cent of all adults smoked, drank more than the recommended amount of alcohol and had used cannabis in the previous 12 months. Those in the Hedonistic Immortals and Live for Today segments, those in the most deprived areas, and in Freedom years aged under 25 and Alone again segments were more likely than average to exhibit all three unhealthy behaviours.

- Three per cent of all adults smoked, drank more than the recommended amount of alcohol, ate fewer than five portions of fruit/vegetables per day and took fewer than five sessions of 30-minutes exercise per week. Those in the Live for Today segment, in the most deprived areas, and the Younger settlers and Alone again lifestages were more likely than average to exhibit all four negative health behaviours.
- It is notable that respondents in the Alone again lifestage were most (or second most) likely to exhibit all combinations of unhealthy behaviours, reflecting the importance of understanding this important group of respondents. In addition, there were clear differences in prevalence of unhealthy combinations of behaviours among members of the less motivated segments and those in the most deprived areas, with differences most marked when combinations included smoking and fruit/vegetable consumption.

# Appendices

<b>1</b>	<b>Project Advisory Group and SHA/PCT Reference Group</b>	<b>162</b>
<b>2</b>	<b>Questionnaire</b>	<b>164</b>
2.1	Audio Self-completion Questions	214
2.2	Showcard MA	219
<b>3</b>	<b>Response Rates</b>	<b>220</b>
<b>4</b>	<b>Weighting</b>	<b>222</b>
<b>5</b>	<b>Estimating the Design Effect on Sampling Errors</b>	<b>225</b>
<b>6</b>	<b>Inputs to the Motivation Ensemble</b>	<b>230</b>
<b>7</b>	<b>Final Motivation Solution</b>	<b>282</b>
<b>8</b>	<b>Environment Cluster Profiles</b>	<b>285</b>
<b>9</b>	<b>Deprivation and IMD Analysis</b>	<b>287</b>
<b>10</b>	<b>Hierarchical Cluster Analysis Details</b>	<b>291</b>
<b>11</b>	<b>Lifestages</b>	<b>293</b>
<b>12</b>	<b>Unit Scores</b>	<b>295</b>
<b>13</b>	<b>Standardisation and Centring of Respondents</b>	<b>296</b>
<b>14</b>	<b>Poly-behaviours by Deprivation within Motivation</b>	<b>297</b>
<b>15</b>	<b>The Allocation Questionnaires</b>	<b>300</b>
15.1	The 19-item questionnaire and allocation algorithm	300
15.2	The 6-item questionnaire and allocation algorithm	308

# Appendix 1: Project Advisory Group and SHA/PCT Reference Group

Name	Organisation	Project Advisory Group	SHA/PCT Reference Group	Consulted on the project
Jake Abbas	Yorkshire and Humber PHO	x	x	x
Julie Alexander	DH	x	x	x
Robert Anderson	DH			x
Scott Anderson	Yorkshire and Humber PHO		x	x
Phil Atkinson	Southwark PCT	x		x
Nicola Bainbrigge	NHS West Kent		x	
Neil Barrie	Ingram	x		
Lucy Brady	DH			x
Laurence Bruce	DH			x
David Buck	DH		x	x
Helen Carlin	North West PHO		x	x
Jason Cox	DH			x
Julia Crighton	DH	x		x
Eugenia Cronin	NHS Haringey and Haringey Council		x	
Katie Dee	NHS North West		x	
Ann Deehan	DH	x		x
Louise Dibsdall	NHS Havering		x	
Richard Donaldson	Brilliant Futures Ltd		x	
Sarah Dugan	NHS Dudley		x	
Victoria Dwyer	NHS West Kent		x	
Caroline Fox	DH			x
Paul Fryers	East Midlands PHO		x	
Lucy Gate	DH		x	x
Sunjai Gupta	DH	x	x	x
Angela Hamilton	NHS Yorkshire and the Humber		x	
Julia Holding	NHS West Midlands		x	
Stephen Hooker	COI	x	x	x

Dave Jenner	East Midlands PHO	x	x	
Lesley Jones	Bolton PCT		x	
Vincent La Placa	DH		x	x
Valerie Little	NHS Dudley		x	x
Chris Lovitt	NHS Tower Hamlets		x	
Ewen MacGregor	DH	x	x	x
Claire Madden	NHS West Kent		x	
Tim Madelin	NHS Tower Hamlets		x	x
Dr James Mapstone	South Central SHA		x	
Les Mayhew	CASS Business School	x	x	
Dominic McVey	Word of Mouth Research Ltd and the National Social Marketing Centre	x	x	x
Marie Meredith	National Social Marketing Centre		x	x
Sheila Mitchell	DH			x
Uma Moorthy	DH	x	x	x
Lee Morris	Bonamy Finch Ltd	x		x
Dr Agnes Nairn	University of Bath	x		x
Alison Neave	NHS Information Centre			x
Simon Orange	Yorkshire and the Humber PHO		x	
Jane Pilkington	Ashton, Leigh and Wigan PCT		x	
Dr Fawzia Rahman	NHS Central Derby		x	
Elaine Rashbrook	NHS Havering		x	
Christine Roberts	DH	x	x	x
Claire Roberts	Ashton, Leigh and Wigan PCT		x	
Mehboob Umarji	DH		x	
Damian Wilcock	DH	x	x	x
Emma Williamson	COI	x		x
Richard Willmer (Chair)	DH	Chair	Chair	x
Fiona Wood	COI	x		x
Steve Wreyford	COI	x		x

# Appendix 2: Questionnaire

First, I would like to ask you a few questions about this household and the people you live with.

A1 To start, can I just ask you how old you are?

Enter actual age \_\_\_\_\_

If refused: use bands below

16-24	25-34	35-44	45-54	55-64	65-74	Refused
-------	-------	-------	-------	-------	-------	---------

A2 Code respondent gender

Male	Female	Other	Prefer not to answer
------	--------	-------	----------------------

A3 How many people live in this household, excluding yourself?

Enter number

IF 1 OR MORE ENTERED AT A3 GO TO A9

A4 To help me to ask the next few questions, can I take the name or the initials of the other people who live in the household with you? Let's start with the oldest person and work down.

COLLECT INITIALS FOR EACH PERSON


A5 RECORD GENDER FOR EACH PERSON

Male	Female	Other
------	--------	-------

## A6 And how old is he/she?

Enter actual age \_\_\_\_\_

If refused: use bands below

Under 5	5–11	12–15	16–24	25–34	35–44
45–54	55–64	65–74	75 or older	Refused	FOR EACH PERSON AGED 16–64

## A7 Is he/she working or not working?

SHOW CARD 1

CODE MAIN ACTIVITY

- In paid work
- Retired
- In full-time education
- Not working for other reason (e.g. unemployed, long-term sick/disabled, looking after home and family)
- Don't know
- Refused

## A8 And what is &lt;his/her&gt; relationship to you?

CODE ONE ONLY

- Spouse/civil partner/partner
- Parent (including in-law or step-parent)
- Grandparent (including in-law or step)
- Son/daughter (including in-law, adopted, step or foster)
- Brother/sister (including in-law, adopted, step or foster)
- Other relative
- Friend
- Personal assistant/paid carer
- Other person (specify)
- Don't know/refused

ASK ALL

A9 Which of the categories on this card best describes what you personally do at the moment?

SHOW CARD 2

CODE MAIN ACTIVITY ONLY

- Working in a paid job as an employee
- Working in a paid job or business on a self-employed basis
- (Temporarily) laid off, or on short time
- Unemployed for up to 12 months and actively seeking work
- Unemployed for 12 months or more and actively seeking work
- On a special government training or employment scheme
- Doing unpaid work for yourself or a relative
- A full-time student or pupil
- Looking after the family or home
- Not working because temporarily sick or injured
- Not working because long-term sick or disabled
- Retired from paid work
- None of these
- Don't know
- Prefer not to answer

A10 Can I just check, do you look after, or give any unpaid help or support to family members, friends, neighbours or others because of: long-term physical or mental ill health or disability or problems related to old age?

- Not at all
- Up to 5 hours a week
- More than 5 and up to 10 hours a week
- More than 10 and up to 20 hours a week
- More than 20 hours a week
- I am a full-time carer
- Don't know
- Prefer not to answer

## B GENERAL MOTIVATIONS AND INFLUENCES

The first section of questions is about the way you think and feel about things

**B1** I am going to read out some things that other people have said. Please tell me how much you agree or disagree with each one. (SELF-DETERMINATION AND SELF-ESTEEM)

SHOW CARD 3

Disagree strongly

Disagree

Disagree slightly

Neither agree nor disagree

Agree slightly

Agree

Agree strongly

Don't know

- I generally feel free to express my ideas and opinions
- Most days I feel a sense of achievement from what I do
- I feel good about myself
- I am at least equal to other people
- I tend to believe in fate
- I believe you need to take risks to lead a full life
- I get a lot of pleasure from taking risks
- I generally focus on the here and now rather than worry about the future

**B2** And how much do you agree or disagree with each of these? (SELF-REGULATION, GOAL SETTING AND IMPULSE CONTROL)

SHOW CARD 3

Disagree strongly

Disagree

Disagree slightly

Neither agree nor disagree

Agree slightly

Agree

Agree strongly

Don't know

- If I make a resolution to change something, I pay a lot of attention to achieving it
- I am able to achieve the things I set out to do
- As soon as I see a problem or challenge I start looking for possible solutions
- I have trouble following through with things once I've made up my mind to do something
- I learn from my mistakes

B3 I am going to read out some things that other people have said they would like to have or do over the course of their lives. Could you tell me how important each one is to you personally. Please take your answer from this card. (ASPIRATIONS)

ROTATE ORDER OF PRESENTATION

SHOW CARD 4

Very important 7 ... 1 Not at all important \_\_\_\_\_

Don't know

- To have money, wealth and possessions
- To feel that there are people who really love me and whom I love
- To help people in the world in greater need
- To be healthy
- To have an image that others find appealing
- To learn new things

ASK IF TWO OR MORE RECEIVE SAME HIGHEST RATING AT B3

B4 You said that it was most important to you to <feed forward from CAPI>. Which one of these is most important to you?

CODE ONE ONLY

- To have money, wealth and possessions
- To feel that there are people who really love me and whom I love
- To help people in the world in greater need
- To be healthy
- To have an image that others find appealing
- To learn new things
- Don't know

ASK ALL

**B5** When it comes to other people's opinions, whose are generally the most important to you? Please choose the three most important. (SOCIAL NORMS)

SHOW CARD 5

- Mother/step-mother/female guardian
- Father/step-father/male guardian
- Grandparents
- Brother/sister
- Spouse/partner/civil partner (if aged under 16 boyfriend/girlfriend)
- Your children
- Other family members
- Friends
- Colleagues at work
- Boss or immediate superior at work (if aged under 16 teacher)
- Religious or faith leader (e.g. priest, vicar, imam, rabbi, elder)
- Doctor or medical professional
- People on film or television
- Musicians, singers or songwriters
- Magazines/newspapers
- The government
- Other (specify)
- None
- Don't know

UNLESS NONE/DON'T KNOW AT B5

**B6** And of these, whose opinion is MOST important to you?

**CHOOSE ONE ONLY: ONLY SHOW THOSE MENTIONED AT B5**

SHOW CARD 5

- Mother/step-mother/female guardian
- Father/step-father/male guardian
- Grandparents
- Brother/sister
- Spouse/partner/civil partner (if aged under 16 boyfriend/girlfriend)

- Your children
- Other family members
- Friends
- Colleagues at work
- Boss or immediate superior at work (if aged under 16 teacher)
- Religious or faith leader (e.g. priest, vicar, rabbi, imam, elder)
- Doctor or medical professional
- People on film or television
- Musicians, singers or songwriters
- Magazines/newspapers
- The government
- Other (specify)
- None
- Don't know

ASK ALL

## C LOCAL AREA AND HOME

I would now like to ask you about your home and the local area in which you live

### C1 Which of these applies to your home?

NOTE: This refers to the accommodation as a whole, e.g. a person living in parental home, need to know if parents own, rent etc.

SHOW CARD 6

- Own it outright
- Buying it with the help of a mortgage or a loan
- Pay part rent and part mortgage (shared ownership)
- Rented from local authority/council/new town development
- Rented from housing association/co-operative/charitable trust
- Rented (furnished) from private landlord
- Rented (unfurnished) from private landlord
- Tied to job
- Live here rent free (inc. rent free in relative's/friend's property)
- Squatting

Other (specify)

Refused

C2 Do you have any of the following problems with your home?

CODE ALL MENTIONED

SHOW CARD 7

None of these problems with accommodation

Shortage of space

Too dark, not enough light

Lack of adequate heating facilities

Leaky roof

Damp walls, floors, foundations etc.

Rot in window frames or floors

Mould

No place to sit outside, e.g. terrace or garden

Other (specify)

Don't know

C3 From here, how easy is it for you personally to get to a medium to large supermarket using the transport you usually use?

SHOW CARD 8

Very easy

Fairly easy

Neither easy nor difficult

Fairly difficult

Very difficult

Don't know

C4 From here, how easy is it for you personally to get to an outdoor space, leisure centre or community centre where you could do sport or exercise?

SHOW CARD 8

- Very easy
- Fairly easy
- Neither easy nor difficult
- Fairly difficult
- Very difficult
- Don't know

C5 Thinking in general, how satisfied are you with this area as a place to live?

SHOW CARD 9

- Very satisfied
- Fairly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Very dissatisfied
- Don't know

Now I'd like to ask you a few questions about your immediate neighbourhood, by which I mean your street or block.

C5A Suppose you lost your (purse/wallet) containing your address details, and it was found in the street by someone living in this neighbourhood. How likely is it that it would be returned to you with nothing missing?

SHOW CARD 10

- Very likely
- Quite likely
- Not very likely
- Or not at all likely
- Don't know

**C5B** In the last 12 months have you taken any of the following actions in an attempt to solve a problem affecting people in your local area?

SHOW CARD 11

- Contacted a local radio station, television station or newspaper
- Contacted the appropriate organisation to deal with the problem, such as the council
- Contacted a local councillor or MP
- Attended a public meeting or neighbourhood forum to discuss local issues
- Attended a tenants' or local residents' group
- Attended a protest meeting or joined an action group
- Helped organise a petition on a local issue
- No local problems
- None of the above
- (Spontaneous) Don't know

**C6** Here are some things that can cause problems for people in their area.  
Can you tell me which three of these are the most serious problems in your area?

READ OUT THOSE MENTIONED: CODE UP TO THREE ONLY

SHOW CARD 12

- None of these
- Alcohol use
- Child abuse
- Drug dealing and use
- Drunks or tramps on the streets
- The roads are too dangerous
- Family rows
- Graffiti on walls or buildings
- Homes and gardens in bad condition
- Illegal drug abuse
- Noisy neighbours or loud parties
- Poor public transport
- Poor quality or lack of parks or open spaces
- Problems with dogs
- Rubbish or litter lying around
- Sexual assaults on women or children

- Teenagers hanging around on the streets
- Vandalism and deliberate damage to property
- Don't know

Other problems (specify) \_\_\_\_\_

## D GENERAL VIEWS ON CURRENT HEALTH

D1 All things considered, how satisfied are you with your life as a whole nowadays? Would you say you are...

SHOW CARD 13

Extremely dissatisfied 0 ... 10 Extremely satisfied \_\_\_\_\_

- Don't know

The next few questions ask you about your feelings about health in general. As with the rest of this interview, I would like to remind you that there are no right or wrong answers, as we are interested in your views and opinions.

D2 In general, how would you say your health is?

SHOW CARD 13a

- Very good
- Fairly good
- Neither good nor bad
- Fairly bad
- Very bad
- Don't know

D3 I am going to read out some things that people have said about health in general. Please could you tell me how much you agree or disagree with each one.

ROTATE ORDER OF PRESENTATION

SHOW CARD 14

- Disagree strongly
- Disagree
- Disagree slightly
- Neither agree nor disagree
- Agree slightly
- Agree

Agree strongly

Don't know

- Following a healthy lifestyle over the coming year is an effective way to reduce my chances of becoming ill
- If you don't have your health you don't have anything
- There is nothing more important than good health

#### HEALTH CONSCIOUSNESS

- I am usually aware of my health
- I'm very involved in my health

#### HEALTH LOCUS OF CONTROL

- I am in control of my own health
- The main thing which affects my health is what I personally do

#### FATALISM

- If a person is meant to get ill, it doesn't matter what a doctor tells them to do, they will get ill anyway

People think differently about their health and how it might change in the future, and the next few questions are about that subject.

D4 Compared with other people of your age, how likely do you think it is that you will get seriously ill at some point over the next few years?

#### SHOW CARD 15

- I am much MORE likely to get seriously ill than other people of my age
- I am a little more likely
- No more or less likely
- I am a little less likely
- I am much LESS likely to get seriously ill than other people of my age
- Not applicable/already have a serious illness
- Don't know

## E HEALTHY LIFESTYLES

The next section of questions is about healthy lifestyles

E1 To what extent would you agree or disagree with these things that other people have said about healthy lifestyles?

SHOW CARD 16

- Disagree strongly
- Disagree
- Disagree slightly
- Neither disagree nor agree
- Agree slightly
- Agree
- Agree strongly
- Don't know

(HEALTH STATUS MEASURE – LIFESTYLE/INTENTIONS TO LEAD A HEALTHY LIFESTYLE)

DO NOT ROTATE

- I would describe my current lifestyle as healthy
- I intend to lead a healthy lifestyle over the next 12 months

E2 And still thinking about your own lifestyle at the moment, which of the statements on this card best describes your view? (PERCEPTIONS OF RISK)

SHOW CARD 17

IF I DON'T LEAD A HEALTHY LIFESTYLE, MY HEALTH COULD BE AT RISK ...

- In the next 12 months
- In the next few years
- In the next 10–20 years
- Much later in my life
- Not at all
- Don't know
- Prefer not to answer

## E3 Thinking generally, how would you personally describe a 'healthy lifestyle'?

DO NOT PROMPT. CODE ALL THAT APPLY

- A healthy diet
- Drink lots of water
- Maintaining low cholesterol
- No illegal drug use
- No smoking
- Not drinking too much alcohol
- Practise safer sex/look after your sexual health (e.g. using condoms)
- Reduce salt in diet
- Reducing stress
- Regular exercise
- Regular health checks
- Taking vitamins/supplements
- Getting enough sleep
- Feeling happy
- Other (specify)
- None of these
- Don't know

## E4 Removed

READ OUT

Still thinking about your own lifestyle, which of these best describes your view on leading a healthy lifestyle over the next 12 months? (SELF-EFFICACY)

## E5 For you, would leading a healthy lifestyle be ...

SHOW CARD 18

Extremely difficult 1 ... 7 Extremely easy \_\_\_\_\_

- Don't know

E6 For you, would leading a healthy lifestyle be ... (ATTITUDES TOWARDS LEADING A HEALTHY LIFESTYLE)

SHOW CARD 19

Enjoyable 1 ... 7 Not enjoyable \_\_\_\_\_

Don't know

E7 How much control do you believe you have over whether or not you lead a healthy lifestyle over the following year? (SELF-EFFICACY)

SHOW CARD 20

No control 1 ... 7 Complete control \_\_\_\_\_

Don't know

## F BEHAVIOUR

Next I would like to ask you some questions about your own lifestyle. Please remember that there are no right or wrong answers here, and I would like you to be as honest as possible in answering my questions.

Firstly I would like you to think about food and what you eat.

F1 How often do you eat each of these things in a normal week?

SHOW CARD 21

Several times a day

Every day

5 or 6 days a week

3 or 4 days a week

Once or twice a week

Less often

Never

Don't know

- Fruit, salad and vegetables – not including potatoes
- Starchy foods such as bread, potatoes, rice and pasta
- Sugar and foods containing a lot of sugar, such as cakes, puddings, pastries, biscuits, sweets and soft drinks
- Fatty or fried foods such as crisps or chips
- Any fish other than fried fish or fish in bread crumbs or batter

F1a Thinking just about YESTERDAY, can you tell me how many portions of fruit you ate?

A portion is about a handful, and could include fresh, frozen, chilled, canned or dried fruit either eaten separately or as an ingredient in a meal. This also includes 100% juice and smoothies.

ENTER NUMBER \_\_\_\_\_

Don't know

None

F1b And still thinking about YESTERDAY, can you tell me how many portions of salad and vegetables – fresh, frozen or tinned – but not including potatoes – you ate?

A portion is about a handful and could include fresh, frozen or tinned vegetables either eaten separately or as an ingredient in a meal.

ENTER NUMBER \_\_\_\_\_

Don't know

None

F3 And thinking over the next 6 months, which of these statements best describes how you would like to be?

SHOW CARD 22

Exactly as I am now

I would like to be thinking about eating a healthier diet

I would like to have started to eat a healthier diet

I would like to have been eating a healthier diet for at least a few months

Don't know

Prefer not to answer

Next I would like you to think about exercise and physical activity.

F4 In a typical week, which, if any, of the following physical activities have you done to the point where you were slightly sweaty, breathing faster than usual and your heart was beating faster, through physical exertion?

SHOW CARD 23

Cycling

Exercise (e.g. keep fit, aerobics, weight training)

Swimming

Jogging/running

Sports (e.g. football, tennis)

- Brisk walking (e.g. walking to work, walking to the shops, walking to school, hiking, rambling or other walking that gets you out of breath)
- Dancing
- Heavy gardening
- Heavy work around the house (e.g. heavy housework, DIY)
- Heavy manual work as part of your job
- Other (specify)
- None of these
- Don't know

IF UNDERTAKE ANY ACTIVITIES. OTHERS GO TO F7

F5 Thinking of all the activities you do, that is <insert from F4>, how long on average do you do <this activity/these activities> on each occasion?

SHOW CARD 24

- Less than 10 minutes
- 10 to 20 minutes
- 20 to 30 minutes
- 30 minutes to an hour
- More than an hour
- Don't know

F6 <Taking all of the activities you do together> How many times in the week do you usually do <this activity/any of these activities>?

SHOW CARD 25

- 6 or more times a week
- 5 times a week
- 4 times a week
- 3 times a week
- Twice a week
- Once a week
- Less than once a week
- Rarely or never
- Don't know

F7 And thinking over the next 6 months, which of these statements best describes how you would like to be?

SHOW CARD 26

- Exactly as I am now
- I would like to be thinking about doing more exercise or physical activity
- I would like to have started doing more exercise or physical activity
- I would like to have been doing more exercise or physical activity for at least a few months
- Don't know
- Prefer not to answer

## G SELF-COMPLETION SECTION

READ OUT: I'd now like you to answer some questions on the laptop. This is so that you can answer the questions in private.

G1 Would you prefer to answer the questions by reading them on the laptop screen, or by listening to them through the headphones?

IF NECESSARY: If you read the answers on the screen, the questions are a little quicker to answer

Read on screen and enter answers by themselves (continue)

Listen to answers through headphones (start audio interview)

Prefer interviewer to read questions from screen (bring up instruction that some of the questions are quite personal, so it may be worthwhile to move to another room or ask others to leave the room while you are completing the questions)

Other (discuss requirements with respondent and type in how the questions will be answered)

INTERVIEWER: HAND OVER CAPI MACHINE TO RESPONDENT AND HELP TO COMPLETE PRACTICE QUESTIONS

READ OUT: The first two questions are to practise using the laptop. Please give your honest answers. I will explain how to complete each one.

INTERVIEWER: THE ANSWERS TO THESE QUESTIONS WILL BE USED

ASK ALL

G2 Please take a look at this list of people and organisations. From which of them would you prefer to get information about living a healthier lifestyle?

PLEASE CHOOSE ALL THAT APPLY

- GP/practice nurse
- Doctor or nurse at a hospital
- Pharmacist
- Other therapist (e.g. occupational therapist)
- Other health professional (e.g. dentist, health visitor, school nurse, midwife)
- NHS Walk-in Centre
- Telephone helpline (e.g. NHS Direct)
- Charity/voluntary organisation/group relevant to a health problem or disability
- NHS Direct or NHS Choices websites
- Other website
- Media (magazines/newspapers)
- TV ads or other advertising about health
- Friends
- Family
- Colleagues
- Employer
- Supermarket/food supplier
- Other (please type in who/where)
- I have all the information I need/don't want any more information
- None of these people or organisations
- Don't know

G4 I am going to ask you about your height. How would you prefer to give your answer?

CHOOSE ONE ANSWER

- Feet and inches
- Metres and centimetres

Don't know my height (follow-up question: are you able to give an estimate of your height, even if you don't know for sure?)

Prefer not to answer

ROUTE INTO NEXT QUESTION BASED ON ANSWER TO G4

G5 Please enter how tall you are without shoes in the boxes below

G6 Are you fairly sure of your height, or is that an estimate?

CHOOSE ONE ANSWER

Fairly sure

Estimate

READ OUT: Please answer the next few questions in your own time.

If you have any problems please ask me and I will be happy to help you.

ASK ALL

G7 Next I am going to ask you about your weight. How would you prefer to give your answer?

CHOOSE ONE ANSWER

Stones and pounds

Kilograms

Don't know my weight (follow-up question: are you able to give an estimate of your weight, even if you don't know for sure?)

Prefer not to answer

ROUTE INTO NEXT QUESTION BASED ON ANSWER TO G7

G8 Please enter your current weight in the boxes below

G9 Are you fairly sure of your weight, or is that an estimate?

CHOOSE ONE ANSWER

Fairly sure

Estimate

ASK ALL

The next few questions ask you in a little more detail about the things you do. Please try to answer as honestly as possible.

G13 Which of these best describes you?

PLEASE CHOOSE ONE ONLY

- I have never smoked cigarettes or hand rolled cigarettes
- I smoke cigarettes or hand rolled cigarettes nowadays
- I used to smoke cigarettes or hand rolled cigarettes, but gave up in the past 6 months
- I used to smoke cigarettes or hand rolled cigarettes, but gave up more than 6 months ago
- Don't know
- Prefer not to answer

IF CURRENT SMOKER AT G13, OTHERS GO TO G18

G14 At what age did you start to smoke regularly?

PLEASE CHOOSE ONE ONLY

- Before age 11
- 11–12
- 13–15
- 16–18
- 19–21
- After age 21
- Don't know/can't remember
- Prefer not to answer

G15 On average, how many cigarettes or hand rolled cigarettes do you usually smoke a day?

PLEASE ENTER NUMBER

- Enter number
- Don't know
- Prefer not to answer

G17 And thinking over the next 6 months, which of these statements best describes how you would like to be?

PLEASE CHOOSE ONE

- Exactly as I am now
- I would like to be thinking about giving up smoking
- I would like to have started to give up smoking
- I would like to have given up smoking for at least a few months
- Don't know
- Prefer not to answer

ASK ALL

The next few questions are about drinking alcohol, including drinks you brew or make at home.

G18 Thinking about the last 12 months, how often do you have an alcoholic drink? Please include drinks that are drunk in or out of the home.

PLEASE CHOOSE ONE

- Every day
- 5 or 6 days a week
- 3 or 4 days a week
- Once or twice a week
- Less than once a week, but at least once a month
- Once every couple of months
- Once or twice a year
- Never in the past 12 months
- Don't know
- Prefer not to answer

IF EVER DRINK ALCOHOL AT G18. OTHERS GO TO G25

G19 Have you had any alcoholic drinks in the last 7 days? Please include drinks that are drunk in or out of the home.

- Yes
- No
- Don't know
- Prefer not to answer

IF YES AT G19. OTHERS GO TO G23

G21 In the last 7 days, how many of each of these types of drink have you had? Please include drinks that are drunk in or out of the home.

ENTER THE NUMBER OF DRINKS YOU HAD

- Enter number
- Less than one
- None
- Don't know
- Prefer not to answer

- Pints or bottles of normal strength beer, bitter, lager or cider
- Pints or bottles of extra strong beer, bitter, lager or cider
- Glasses of wine
- Glasses of Martini, sherry or port (not wine)
- Single measures of spirits or liqueur such as whiskey, gin, vodka etc.
- Bottles of designer drinks or alcoholic lemonade such as Castaway, Red, Reef, Hooch, Bacardi Breezer, Smirnoff Ice, etc.

CAPI TO CALCULATE NUMBER OF DRINKS IN PAST 7 DAYS

IF DRANK MORE THAN 4 DRINKS IN PAST 7 DAYS

G24 And thinking over the next 6 months, which of these statements best describes how you would like to be?

PLEASE CHOOSE ONE

- Exactly as I am now
- I would like to be thinking about reducing my alcohol intake
- I would like to have started to reduce my alcohol intake
- I would like to have reduced my alcohol intake for at least a few months
- Don't know
- Prefer not to answer

ASK ALL

The next questions are about illegal drugs. Please answer honestly. The answers you give are completely confidential.

G25 Have you taken any of these drugs in the past 12 months?

PLEASE CHOOSE ALL THAT APPLY

- None of these
- Amphetamines (speed, whizz, uppers, billy)
- Cannabis (marijuana, grass, hash, ganja, blow, skunk, draw, weed, spliff)
- Cocaine/coke
- Crack/rock/stones
- Ecstasy (E)
- Heroin (smack, H, brown)
- LSD/acid
- Magic mushrooms
- Methadone/physeptone (not prescribed by a doctor)
- Semeron (dummy drug to test over-claiming)
- Tranquillisers (temazepam, valium, not prescribed by a doctor)
- Amyl nitrite (poppers)
- Anabolic steroids (not prescribed by a doctor)
- Glues, solvents, gas or aerosols to sniff or inhale
- Ketamine (green, K, special K, super K, vitamin K)
- Any other pills or powders not prescribed by a doctor, even if you didn't know what they were
- Anything else you may have smoked when you didn't know what it was

Anything else you knew or thought was a drug (not prescribed by a doctor)

Don't know

Prefer not to answer

IF ANY TAKEN AT G25

G26 How often during the last 12 months have you taken <drug/any of the drugs you have mentioned>?

CHOOSE ONE ONLY

Every day

3 to 5 days a week

Once or twice a week

2 or 3 times a month

Once a month

Once every couple of months

Once or twice in the past 12 months

Don't know

Don't want to answer

IF AT LEAST MONTHLY AT G26

G27 And thinking over the next 6 months, which of these statements best describes how you would like to be?

PLEASE CHOOSE ONE

Exactly as I am now

I would like to be thinking about reducing my drug use

I would like to have started to reduce my drug use

I would like to have reduced my drug use for at least a few months

Don't know

Prefer not to answer

ASK ALL AGED 18–54

The next questions are about other matters. We would like to get a picture of people's health, including sexual health, and therefore need to ask you a small number of questions about the subject. Once again, your answers are confidential, so please be as honest as you can.

**G28** This question is about condoms. Condoms are sometimes called sheaths or Durex. In the past year, have you used condoms ...

CHOOSE ALL THAT APPLY

- To prevent pregnancy
- To protect against HIV and other sexually transmitted diseases
- Have not used condoms in the past year
- Don't know
- Prefer not to answer

IF HAVE NOT USED CONDOMS IN THE PAST YEAR

**G29** Have you not used condoms in the past year for any of these reasons?

PLEASE CHOOSE ALL THAT APPLY

- You have not had sex in the past year
- You are in a long-term relationship/have only one faithful partner
- You/your partner use a different type of contraception
- You are trying to get <a partner> pregnant
- You/your partner has been sterilised
- Your partner refused
- No condoms were available
- Your partner does not like using condoms
- You do not like using condoms
- Other reason
- No reason
- Don't know
- Prefer not to answer

ASK ALL AGED 18–54

G30 In the past year, have you visited a doctor or clinic for any of these reasons?

CHOOSE ALL THAT APPLY

- <women only> Because of pregnancy/I thought I was/was trying to get pregnant
- To gain contraceptive advice or supplies
- To have a sexual health screening (e.g. smear test, testicular health check)
- Because I thought I had a sexually transmitted infection
- To be treated for a sexually transmitted infection
- Other reason related to sexual health
- None of these
- Don't know

G30a Can I just check, how likely do you think it is that you will have sex in the next 6 months with a new partner or someone you had only just met?

CHOOSE ONE ANSWER ONLY

- Definitely will not
- Probably will not
- Probably will
- Definitely will
- Don't know
- Prefer not to answer

IF PROBABLY WILL NOT, PROBABLY WILL, OR DEFINITELY WILL AT G30a

G31 And if you were to have sex in the next 6 months with a new partner or someone you had only just met, how likely would you be to use a condom?

PLEASE CHOOSE ONE

- I definitely would use a condom
- Probably would
- Probably would not
- Definitely would not
- Don't know
- Prefer not to answer

G31a Can I just check, have you had any of these in the past 2 years? This could be by your doctor, pharmacist or you have tested yourself. You can just read out the letter(s) that apply.

IF MALE

- Test for diabetes
- Test for high blood pressure
- Test for high cholesterol
- Testicular cancer check
- Prostate check
- Chlamydia test
- HIV test
- None of these
- Don't know
- Prefer not to answer

IF FEMALE

- Test for diabetes
- Test for high blood pressure
- Test for high cholesterol
- Cervical smear test
- Breast cancer check
- Chlamydia test
- HIV test
- None of these
- Don't know
- Prefer not to answer

ASK ALL WHO LIVE WITH ONE OR MORE OTHER PERSON IN HOUSEHOLD

G34 Can you tell me whether anyone in your household does any of the following nowadays? You don't need to say who.

- Smoke cigarettes
- Drink a lot of alcohol
- Take illegal drugs
- None of these
- Don't know

ASK ALL

Next I would like to ask you about how you have been feeling over the past few weeks.

Overall have you: (GHQ)

G35 ... been able to concentrate on whatever you're doing?

- Better than usual
- Same as usual
- Less than usual
- Much less than usual

G36 ... lost much sleep over worry?

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

G37 ... felt you were playing a useful part in things?

- More so than usual
- Same as usual
- Less so than usual
- Much less than usual

G38 ... felt capable of making decisions about things?

- More so than usual
- Same as usual
- Less so than usual
- Much less capable

G39 ... felt constantly under strain?

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

G40 ... felt you couldn't overcome your difficulties?

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

G41 ... been able to enjoy your normal day-to-day activities?

- More so than usual
- Same as usual
- Less so than usual
- Much less than usual

G42 ... been able to face up to your problems?

- More so than usual
- Same as usual
- Less able than usual
- Much less able

G43 ... been feeling unhappy and depressed?

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

G44 ... been losing confidence in yourself?

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

G45 ... been thinking of yourself as a worthless person?

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

G45a ... been feeling reasonably happy, all things considered?

- More so than usual
- About the same as usual
- Less so than usual
- Much less than usual

We would now like to ask you about any events which may have happened to you in the past few years.

**G46 Have any of the things below happened to you?**

CHOOSE ALL THAT APPLY

- You developed or found out you have a serious illness or disability or have an existing condition that got worse
- A family member or close friend has had a serious problem with their health
- Death of a close family member (e.g. spouse/partner, parent, child, brother/sister)
- Death of a close friend who was important to you
- None of these
- Don't know
- Prefer not to answer

**G47 Have any of the things below happened to you in the past few years?**

CHOOSE ALL THAT APPLY

- You or the main earner in this household lost a job or thought you would lose a job
- Moved house
- Become divorced or split up from a long-term partner
- Had serious difficulties with any of your children because of their health or behaviour or for some other reason
- Been assaulted or robbed
- Had serious problems with officials or with the law
- Been bullied or harassed at work
- None of these
- Don't know
- Prefer not to answer

**G48 And do any of these apply to you?**

CHOOSE ALL THAT APPLY

- You have ever spent time in care when growing up, or with a foster family
- You have ever been homeless AND in temporary accommodation
- You have ever been homeless AND slept rough
- None of these
- Don't know
- Prefer not to answer

IF AGED 18 OR YOUNGER

G49 How often, if at all, have you been bullied in the past 12 months? (HBSC)

PLEASE CHOOSE ONE ANSWER ONLY

- Not at all
- Once or twice
- Sometimes
- About once a week
- More than once a week
- Don't know
- Prefer not to answer

ASK ALL

The next questions are about you. These questions are quite personal, but it is important that you answer them as honestly as you can.

IF AGED 18+

G52 You mentioned earlier that you have children living in your household. Are you personally a parent to any <other> children who do not live in this household?

CHOOSE ALL THAT APPLY

- No
- Yes – any children aged under 5
- Yes – any children aged 5–11
- Yes – any children aged 12–15
- Yes – any children aged 16–19
- Yes – any children aged 20–24
- Yes – any children aged 25 or older
- Don't know
- Prefer not to answer

IF ANY AT G52 AGED 19 AND UNDER

G52a How often do you see children aged <Age>?

- At least once a fortnight
- At least once a month
- Less often
- Never
- Don't know
- Prefer not to answer

IF NO PARTNER IN HOUSEHOLD AND AGED 18+

G53 And you mentioned earlier that you are not currently living with a partner. Have you ever been married or lived with a partner as a couple?

CHOOSE ONE ONLY

- Yes
- No
- Don't know
- Prefer not to answer

G54a How much do you agree or disagree with these things that other people have said?

- Disagree strongly
- Disagree
- Disagree slightly
- Neither agree nor disagree
- Agree slightly
- Agree
- Agree strongly
- Don't know

IF AGED 18 OR YOUNGER OR LIVE WITH PARENTS

(PARENTAL AUTONOMY SUPPORT SCALE)

- I feel that my parents allow me to make my own choices
- My parents have confidence in my ability to do well

ASK ALL OTHERS

- I feel that my parents allowed me to make my own choices
- My parents had confidence in my ability to do well

IF MALE AGED UNDER 16 AND NO FATHER IN HOUSEHOLD

G54 Can I just check, do you feel you are able to turn to any of these people for help or advice about things like friendships and relationships?

- Father, who does not live in household
- Grandfather
- Uncle
- Brother or cousin aged 18 or older
- Other adult male relative
- Priest, vicar, rabbi, imam, elder or someone else at church or place of worship
- Male teacher
- Male youth worker/youth leader
- Other adult male
- No-one
- Don't know

ASK ALL

G57 Which of these best describes your sexual orientation?

- Heterosexual (that is attracted to women/men)
- Gay/lesbian (that is attracted to women/men)
- Bisexual (that is attracted to both women and men)
- Other
- Don't know
- Prefer not to say

Thank you for answering these questions. Please give the laptop back to the interviewer

ASK ALL

**G58 Do you have any long-standing illness, disability or infirmity?**

By 'long-standing' I mean anything that has troubled you over a period of time or that is likely to affect you over a period of time.

- Yes
- No
- Don't know
- Prefer not to answer

IF YES AT G58

**G59 Does this long-standing illness, disability or infirmity limit your normal day-to-day activities in any way?**

Normal day-to-day activities include everyday things like eating, washing, walking and going shopping.

PLEASE CHOOSE ONE ANSWER

- Yes, it limits my activities all of the time
- Yes, it limits my activities some of the time
- No, it does not limit my activities
- Don't know
- Prefer not to answer

ASK ALL

**G60 Do you have any of the health problems listed below?**

PLEASE CHOOSE ALL THAT APPLY

SHOW CARD 27

- None of these
- Cancer
- Stomach, liver, kidney or digestive problems
- Heart disease/stroke
- High blood pressure
- Type I diabetes
- Type II diabetes
- Diabetes – not sure which type
- Asthma/other breathing difficulty
- HIV/AIDS
- Any sexually transmitted infection

- Stress or depression that you are receiving treatment for
- Other conditions (please specify)
- Don't know
- Prefer not to answer

## H BARRIERS TO MAKING HEALTHY CHANGES

We have already discussed a number of aspects of a healthy lifestyle

### H1 What, if anything, prevents you from living a healthier lifestyle?

DO NOT PROMPT: CODE FIRST THREE MENTIONS AS 1ST MENTION, 2ND MENTION AND 3RD MENTION

- I already live a healthy lifestyle
- Cost
- Time
- Access to facilities/healthier choices
- Other responsibilities/caring/child care
- Other health problems I have
- Lack of knowledge about 'healthier choices'
- Conflicting information or confusion surrounding 'healthier choices'
- Family influence/what family will do
- Lack of will power
- Can't be bothered
- Haven't got round to it
- Other (specify)
- No reason
- Don't know
- Prefer not to answer

## I USE OF SERVICES

Next I would like to ask you about health services.

- 11 Which of the health services on this card have you personally used in the past 3 months? Please just read out the numbers that apply to the services you have used.

CODE ALL MENTIONED

SHOW CARD 28

- GP
- Practice nurse
- Outpatients/day patient appointment
- Been admitted as an inpatient
- Visit to A&E/Casualty
- NHS Walk-in Centre
- Visit from a district nurse
- Pharmacist
- NHS Direct website or telephone line
- NHS Choices website
- Physiotherapist/osteopath/chiropractor
- Psychiatrist/counsellor/community psychiatric nurse
- Contraceptive or sexual health service
- Other service not already mentioned (specify)
- None of these
- Don't know
- Prefer not to answer

- 14 Thinking about all of the health services in your local area, how satisfied or dissatisfied are you with the service the NHS currently delivers to patients in your local area?

CODE ONE ONLY

SHOW CARD 29

- Very satisfied
- Fairly satisfied
- Neither satisfied nor dissatisfied
- Fairly dissatisfied
- Very dissatisfied
- Don't know

## J SOCIAL NETWORKS

Next I would like to ask you about the people you see day to day.

J1 How often, if at all, do you see or speak to a relative or other adult who doesn't live in your household? You could speak to them on the phone.

SHOW CARD 30

- Every day
- At least 2–3 times a week
- At least weekly
- At least monthly
- Less often
- Never
- Don't know/can't say

J3 In the past 12 months, how often have you gone to a group, club or place of worship, to meet other people, to help each other out, for faith reasons, or for enjoyment and relaxation?

Examples could be a spiritual group, social club, sports team, support group, community centre, political group, drama or hobby group, evening class etc.

SHOW CARD 31

- Never
- At most three or four times a year
- About every other month
- About once a month
- Several times a month, but not every week
- About once a week
- Several times a week
- Every day
- Don't know

J4 If you had a serious personal crisis, who could you turn to for comfort and support?

SHOW CARD 32

CODE ALL THAT APPLY

- Husband/wife/partner
- Parent
- Other household member
- Relative (outside household)
- Friend
- Neighbour
- Work colleague
- Voluntary or other organisation
- Other (specify) \_\_\_\_\_
- No-one
- Would prefer not to ask for help
- Don't know

J5 During the last 12 months have you given any unpaid help to any groups, clubs or organisations in any of the ways shown on this card?

SHOW CARD 33

- Raising or handling money/taking part in sponsored events
- Leading the group/member of a committee
- Organising or helping to run an activity or event
- Visiting people
- Befriending or mentoring people
- Giving advice/information/counselling
- Secretarial, admin or clerical work
- Providing transport/driving
- Representing
- Campaigning
- Other practical help (e.g. helping out at school, religious group, shopping)
- Any other help
- None of the above
- (Spontaneous) Don't know

## K HOUSEHOLD SITUATION

The next few questions are about your household situation.

K1 Can I just check, is anyone in your household currently receiving any of these benefits?

SHOW CARD 34

- None of these
- Jobseeker's allowance
- Income support
- Working tax credit
- Child tax credit
- Housing benefit
- Council tax benefit
- Disability living allowance/others
- Other state benefits
- Don't know
- Prefer not to answer

K2 Thinking of the income of the household as a whole, which of the groups on this card represents the total income of the whole household, before deductions for income tax, National Insurance etc. (TGI QUESTION & BANDS)

NOTE – THIS RELATES TO THE INCOME OF EVERYONE IN THE HOUSEHOLD

SHOW CARD 35

- Up to £2,999
- £3,000 – £6,999
- £7,000 – £9,999
- £10,000 – £12,999
- £13,000 – £16,999
- £17,000 – £19,999
- £20,000 – £22,999
- £23,000 – £26,999
- £27,000 – £29,999
- £30,000 – £33,999
- £34,000 – £36,999

- £37,000 – £39,999
- £40,000 – £42,999
- £43,000 – £46,999
- £47,000 – £49,999
- £50,000 – £74,999
- £75,000 – £99,999
- £100,000+
- Don't know
- Prefer not to answer

K3 Thinking generally, which of the phrases on the card best describes how your household are getting along financially nowadays?

SHOW CARD 36

- I/we manage very well
- I/we manage quite well
- I/we get by alright
- I/we have some financial difficulties
- I/we have severe financial difficulties
- Don't know
- Prefer not to answer

K5 I would now like to ask you a question relating to time. Which of the following statements would you agree with? You can just read out the number.

CODE ALL THAT APPLY

SHOW CARD 37

- When you need more time do you tend to cut back on your sleep?
- Do you worry that you don't spend enough time with your family and friends?
- Do you feel that you just don't have time for fun anymore?
- Do you feel under stress when you don't have enough time?
- Would you like to spend more time alone?
- None of these
- Don't know

## L DEMOGRAPHICS

These are the final questions, which will enable us to look at your answers with those of other people like you.

L1 To which of these groups do you consider you belong?

SHOW CARD 38

A White

- British
- Irish
- Polish
- Other Central/Eastern European
- Any other White background

B Mixed

- White and Black Caribbean
- White and Black African
- White and Asian
- Any other Mixed background

C Asian or Asian British

- Indian
- Pakistani
- Bangladeshi
- Any other Asian background

D Black or Black British

- Caribbean
- African
- Any other Black background

E Chinese or other ethnic group

- Chinese
- Any other (specify)
- Prefer not to answer

L2 Can I just check, was your mother born in the UK?

- Yes
- No
- Don't know
- Prefer not to answer

IF NO AT L2

L3 In which country was she born?

RECORD IN FULL, CHECK SPELLING

L4 Was your father born in the UK?

- Yes
- No
- Don't know
- Prefer not to answer

IF NO AT L4

L5 In which country was he born?

RECORD IN FULL, CHECK SPELLING

L5a What is your religion, faith or belief even if you are not currently practising?

SHOW CARD 39

PLEASE CHOOSE ONE ONLY

- Agnostic
- Atheism
- Baptist
- Buddhist
- Church of England/Wales/Scotland
- Eastern Orthodox
- Hindu
- Jehovah's Witness
- Jewish

- Methodist
- Muslim
- Pentecostalist
- Quaker
- Roman Catholic
- Salvation Army
- Seventh Day Adventist
- Sikh
- Any other religion (please type in)
- No religion or belief
- Don't know
- Prefer not to answer

L6 Generally speaking, which language do you feel most comfortable with for holding an everyday conversation?

CODE ONE ONLY

SHOW CARD 40

- English
- Arabic
- Bengali
- Cantonese
- French
- German
- Greek
- Gujarati
- Polish
- Punjabi
- Russian
- Somali
- Spanish
- Sylheti
- Turkish
- Urdu

- Welsh
- Other (specify) \_\_\_\_\_
- Don't know
- Prefer not to answer

ASK ALL

L7 Can I just check, how confident do you feel with reading written English?

SHOW CARD 41

- Very confident
- Quite confident
- Not very confident
- Not confident at all
- Don't know
- Prefer not to answer

L8 So can I just check, how old were you when you finished continuous full-time education?

RECORD AGE IN YEARS, AN ESTIMATE IS ACCEPTABLE. RANGE FROM 10–74

- Enter age
- Still studying
- Don't know

L9 Which qualifications do you have?

NOTE: IF UNCERTAIN, ASK WHICH THEY THINK THEY HAVE. CODE FIRST/HIGHEST WHICH APPLIES  
IF OTHER, PLEASE ENTER FULL DETAILS TO ENABLE US TO ACCURATELY CODE  
IF NECESSARY: Read from the top and tell me the first on the list that applies.

SHOW CARD 42

**1 Any of these qualifications**

- Doctorate
- Masters
- Postgraduate Diploma
- Postgraduate Certificate

## **2 Any of these qualifications**

- First degree
- PGCE
- HND
- NVQ/SVQ Level 4
- SCOTVEC Higher

## **3 Any of these qualifications**

- 2 or more A levels
- 4 or more AS levels
- 3 or more Scottish Highers
- GNVQ/GSVQ Advanced
- BTEC National Diploma
- NVQ/SVQ Level 3
- SCOTVEC National
- Completed Trade Apprenticeship

## **4 Any of these qualifications**

- 5 or more GCSEs/O levels at grades A\*–C or CSEs at grade 1
- 1 A level
- 3 or fewer AS levels
- 1 or 2 Scottish Highers
- GNVQ/GSVQ Intermediate level
- BTEC Intermediate or Diploma
- NVQ/SVQ Level 2
- SCOTVEC Diploma

**5 Any of these qualifications**

- Any GCSEs/O levels, but fewer than 5 at grades A\*–C
- 2 CSEs or fewer
- GNVQ/GSVQ Foundation level
- BTEC First
- SCOTVEC Cert
- NVQ/SVQ Level 1
- Key Skills or Basic Skills qualifications

**6 None/no educational qualifications**

Any other qualification (specify) \_\_\_\_\_

Don't know

IF STILL STUDYING AT A9 AND RESPONDENT HAS NOT ALREADY ACHIEVED A LEVEL 1 QUALIFICATION

L10 And thinking realistically, what do you think is the highest level of qualification you will achieve?

SHOW CARD 42

List as L9

L13 On average, how many hours a DAY do you watch TV? (TGI QUESTION & BANDS)

SHOW CARD 43

- Never watch
- Less than 1 hour
- 1 hour
- 2 hours
- 3 hours
- 4 hours
- 5 hours
- 6 hours
- 7+ hours
- Don't know

L14 Next I would like you to think about the internet. Have you ever used the internet? This could include using email, websites, instant messaging, newsgroups, chatrooms, or other use.

- Yes
- No
- Don't know

IF YES AT L14, OTHERS GO TO NS-SEC QUESTIONS

L15 How frequently do you use the internet nowadays?

SHOW CARD 44

- Several times a day
- Daily
- Several times a week
- Weekly
- Every 2 weeks
- Monthly
- Every 2–3 months
- Less frequently
- Do not use the internet nowadays
- Don't know

PLUS QUESTIONS TO ESTABLISH HOUSEHOLD NS-SEC

## M OTHER

READ OUT

M1 We may want to contact some people again to ask them some more questions about their experiences. Would you be willing to be contacted again to answer some more questions on this subject?

- Yes – willing
- No – not willing
- Don't know

COLLECT/CHECK FULL NAME AND TELEPHONE NUMBER

INTERVIEWER: DO NOT ASK THE FOLLOWING QUESTIONS

M3 Was the respondent interviewed ...

- Wholly in English
- Partly in English, partly in another language
- Wholly in another language

IF ANOTHER LANGUAGE AT M3

M4 Which other language was used for the interview?

WRITE IN

M5 Who provided the translation?

CODE ALL THAT APPLY

- Interviewer
- Other household member
- Friend/neighbour
- Interpreter provided by research company
- Other person (write in who) \_\_\_\_\_

ALL ANSWER

M6 Was anyone else present in the room, or passing through, or nearby, during any part of the interview and (possibly) able to overhear?

- Yes
- No

M7 Did anyone else in the household look at or discuss any part of the self-completion questionnaire during completion?

- Yes – looked at/read/completed together
- Yes – discussed only
- No
- Self-completion questions not completed

# Appendix 2.1: Audio Self-completion Questions

G13 Do you smoke cigarettes or hand rolled cigarettes nowadays?

- Yes
- No
- Don't know
- Prefer not to answer

G13a On average, do you smoke ...

- fewer than 10 cigarettes a day
- 10–19 cigarettes a day
- 20 cigarettes or more a day

G17 Would you like to start to give up smoking in the next 6 months?

- Yes
- No
- Don't know
- Prefer not to say

G18 Thinking about the last 12 months, how often do you have an alcoholic drink? Please include drinks that are drunk in or out of the home.

- Once a week or more
- Less than once a week but at least once a year
- Never in the past 12 months
- Don't know
- Prefer not to answer

G19 Have you had any alcoholic drinks in the last 7 days?

- Yes
- No
- Don't know
- Prefer not to answer

IF YES AT G19. OTHERS GO TO G23

How many <insert> have you had in the last 7 days?

Enter number \_\_\_\_\_

- Less than one
- None
- Don't know
- Prefer not to answer

- Pints or bottles of normal strength beer, bitter, lager or cider
- Pints or bottles of extra strong beer, bitter, lager or cider
- Glasses of wine
- Glasses of Martini, sherry or port (not wine)
- Single measures of spirits or liqueurs such as whiskey, gin, vodka, etc.
- Bottles of designer drinks or alcoholic lemonade such as Castaway, Red, Reef, Hooch, Bacardi Breezer, Smirnoff Ice, etc.

G24 Would you like to start to cut down the amount of alcohol you drink over the next 6 months?

- Yes
- No
- Don't know
- Prefer not to say

ASK ALL

The next questions are about illegal drugs. Please answer honestly. The answers you give are completely confidential.

G25 Have you taken <INSERT> in the past 12 months?

- Cannabis
- Cocaine
- Ecstasy
- Amphetamines/speed

Yes

No

Don't know

Prefer not to say

IF YES AT G25

G27 Would you like to reduce your drug taking over the next 6 months?

Yes

No

Don't know

Prefer not to say

ASK ALL AGED 18–54

The next questions are about other matters. We would like to get a picture of people's health, including sexual health, and therefore need to ask you a small number of questions about the subject. Once again, your answers are confidential, so please be as honest as you can.

G30a How likely do you think it is that you will have sex in the next 6 months with a new partner or someone you have only just met?

I will

I might

I will not

Don't know

Prefer not to answer

IF WILL OR MIGHT AT G30a

G31 And if you were to have sex in the next 6 months with a new partner or someone you had only just met, how likely would you be to use a condom?

- I would
- I might
- I would not
- Don't know
- Prefer not to answer

G57 Are you mainly attracted to...?

- Men
- Women
- Both
- Don't know
- Prefer not to say

ASK ALL

Next I would like to ask you about how you have been feeling over the past week.

G41 Overall have you been able to enjoy your normal day-to-day activities?

- More so than usual
- About the same as usual
- Less so than usual
- Or have you not been able to enjoy your normal day to day activities at all?

G43 Overall have you been feeling unhappy and depressed?

- More so than usual
- About the same as usual
- Less so than usual
- Or have you not been feeling unhappy or depressed at all?

IF AGED 18+

G52 Are you personally a parent to any children who do not live in this household?

- Yes
- No
- Don't know
- Prefer not to answer

IF NO PARTNER IN HOUSEHOLD AND AGED 18+

G53 And you mentioned earlier that you are not currently living with a partner. Have you ever been married or lived with a partner as a couple?

- Yes
- No
- Don't know
- Prefer not to answer

G34 Can you tell me whether anyone in your household does any of the following nowadays? You don't need to say who.

- Smoke cigarettes
- Drink a lot of alcohol
- Take illegal drugs
- None of these
- Don't know

## Appendix 2.2: Showcard MA

1. White British
2. White Irish
3. Polish
4. Other Central/Eastern Europe
5. Other white
6. Mixed white and black Caribbean
7. Mixed white and black African
8. White and Asian
9. Any other mixed background
10. Indian
11. Pakistani
12. Bangladeshi
13. Any other Asian background
14. Caribbean
15. African
16. Any other black background
17. Chinese
18. Other ethnic group

# Appendix 3: Response Rates

Three response rates were calculated for this study, and they are demonstrated in tables A3.1 and A3.2. Table A3.1 details the sample breakdown for the main sample and table A3.2 for the deprived boost.

## 3.1 Main sample (nationally representative) response rates

**Table A3.1: Response rates for nationally representative sample; first column, number; second column, percentage**

<b>Addresses issued</b>	<b>6,407</b>	<b>100</b>
Vacant	202	3
Derelict/demolished	31	<1
Non-residential	66	1
Not found	36	1
Unsure if occupied after 6+ calls	150	2
No eligible respondent	656	10
<b>Total invalid addresses (dead wood)</b>	<b>1,141</b>	<b>18</b>
<b>Valid addresses</b>	<b>5,266</b>	<b>100</b>
Too ill	50	1
Away during fieldwork	36	1
Refused before householder selection	814	15
Refused after householder selection	592	11
No parental permission for child interview	5	<1
Office refusal	75	1
Occupier in but not answering door after 6+ calls	32	1
Entry to block or scheme refused	5	<1
Occupied but no contact with adult aged 18+ after 6+ calls	218	4
Some contact but screening questionnaire not completed after 6+ calls	363	7
Mother tongue required	30	1
Not needed, target reached	92	2
Other	72	1
<b>Completed interviews</b>	<b>2,882</b>	<b>55</b>

### 3.2 Deprived boost sample (10% most deprived areas) response rates

**Table A3.2: Response rates of deprived boost; first column, number; second column, percentage**

<b>Addresses issued</b>	<b>4,858</b>	<b>100</b>
Vacant	230	5
Derelict/demolished	57	1
Non-residential	72	1
Not found	27	1
Unsure if occupied after 6+ calls	186	4
No eligible respondent	384	8
<b>Total invalid addresses (dead wood)</b>	<b>956</b>	<b>20</b>
<b>Valid addresses</b>	<b>3,902</b>	<b>100</b>
Too ill	45	1
Away during fieldwork	15	<1
Refused before householder selection	459	12
Refused after householder selection	386	10
No parental permission for child interview	4	<1
Office refusal	37	1
Occupier in but not answering door after 6+ calls	35	1
Entry to block or scheme refused	23	1
Occupied but no contact with adult aged 18+ after 6+ calls	245	6
Some contact but screening questionnaire not completed after 6+ calls	282	7
Mother tongue required	34	1
Not needed, target reached	115	3
Other	61	2
<b>Completed interviews</b>	<b>2,161</b>	<b>55</b>

# Appendix 4: Weighting

The survey data needs to be weighted in a number of ways in order to reflect:

- (i) probability of dwelling selection;
- (ii) probability of household selection;
- (iii) probability of individuals aged 12–74 years selection;
- (iv) geographic spread; and
- (v) the residual demographic imbalances.

The first three of these weights deal with differing probabilities of selection. Very few addresses in this survey needed sampling by interviewers for either dwelling or household selection.

## 4.1 Probability of selection

The sampling method involved differential chance of selection for interview. To correct for this, weights need to be applied to give equal probability of selection for dwelling, household and individuals aged 12–74 years. The calculations for these weights are detailed below.

### 4.1.1 Weighting for differential chance of dwelling selection

Number of respondents in 1 dwelling address  
 $x 1 = a$

Number of respondents in 2 dwelling addresses  
 $x 2 = b$

Number of respondents in 3 dwelling addresses  
 $x 3 = c$ , etc.

Sum of the above = total population

$a/\text{total population} = \text{weight applied to 1 dwelling address}$

$b/\text{total population} = \text{weight applied to 2 dwelling addresses}$

$c/\text{total population} = \text{weight applied to 3 dwelling addresses, etc.}$

### 4.1.2 Weighting for differential chance of household selection

Number of respondents in 1 household address  
 $x 1 = d$

Number of respondents in 2 household addresses  
 $x 2 = e$

Number of respondents in 3 household addresses  
 $x 3 = f$ , etc.

Sum of the above = total population

$d/\text{total population} = \text{weight applied to 1 household address}$

$e/\text{total population} = \text{weight applied to 2 household addresses}$

$f/\text{total population} = \text{weight applied to 3 household addresses, etc.}$

### 4.1.3 Weighting for differential chance of individual selection (based on 12–74-year-olds)

Number of respondents in 1 individual address  $\times 1 = g$

Number of respondents in 2 individual addresses  $\times 2 = h$

Number of respondents in 3 individual addresses  $\times 3 = i$ , etc.

Sum of the above = total population

$g/\text{total population} = \text{weight applied to 1 individual address}$

$h/\text{total population} = \text{weight applied to 2 individual addresses}$

$i/\text{total population} = \text{weight applied to 3 individual addresses, etc.}$

## 4.2 Geographic weights

The original sample design boosted the number of interviews in the 10% most deprived areas to ensure that the achieved sample size was robust enough for independent analysis. To produce results representative of England these areas were down-weighted at the analysis stage. Weights were applied based on the 2001 census, as demonstrated in table A4.1.

**Table A4.1: Corrective geographic weights**

	Census data (%)	Healthy Foundations survey data (%)
<b>Strategic health authority</b>		
East Midlands	8.44	6.90
East of England	10.93	6.90
London	14.92	13.72
North East	5.15	9.23
North West	13.69	19.60
South Central	7.94	5.38
South East	8.28	5.15
South West	9.96	6.98
West Midlands	10.64	11.77
Yorkshire and the Humber	10.05	14.37
<b>IMD decile</b>		
1 (least deprived)	10	5.40
2	10	4.91
3	10	7.22
4	10	4.32
5	10	6.37
6	10	6.86
7	10	5.84
8	10	6.21
9	10	7.67
10 (most deprived)	10	45.19

### 4.3 Demographic weights

Demographic weights have also been applied to the data, as the initial weights did not produce a representative sample in terms of three key variables – sex, age and working status. The interim weighted profile was compared with the 2001 census figures and the appropriate target weights were applied to bring the data into line with the 2001 census (table A4.2).

**Table A4.2: Corrective demographic weights**

	Census data (%)	Healthy Foundations survey data (%)
<b>Gender and age</b>		
16–17 Male	1.83	1.14
18–24 Male	6.47	4.30
25–34 Male	9.02	7.40
35–44 Male	10.42	8.66
45–54 Male	8.69	7.44
55–64 Male	7.88	7.20
65–74 Male	5.33	6.62
16–17 Female	1.73	1.29
18–24 Female	6.19	6.37
25–34 Female	9.03	11.32
35–44 Female	10.54	10.65
45–54 Female	8.83	9.03
55–64 Female	8.15	9.76
65–74 Female	5.89	8.66
<b>Ethnicity</b>		
White	91.41	84.11
Asian	4.42	7.47
Black	2.31	5.38
Other	1.86	2.58
<b>Working status</b>		
Full-time	47.40	37.84
Part-time	17.30	12.64
Not working	35.30	49.39
<b>Children in household</b>		
Children under 16 in household	35.00	30.22
No children under 16 in household	65.00	69.60

# Appendix 5: Estimating the Design Effect on Sampling Errors

The accuracy of estimates provided by any survey is dependent on the sampling errors produced by the survey. These errors are a function of a number of elements within the sample design:

- sample size;
- probability of selection of respondents;
- degree of clustering of the sample; and
- post-stratification weighting.

Confidence intervals are most often used to describe this accuracy. They are generally presented in terms of errors around percentage estimates, e.g.  $\pm 5\%$  on an estimate of 50%. The standard formulae for confidence intervals are based on the assumption that the survey design is a perfectly balanced, unclustered, random probability sample with no non-response bias. In almost all cases, sample designs will deviate from this theoretical 'ideal' in three key areas.

- (i) Face-to-face surveys will often involve a degree of geographic **clustering**, in order to make the fieldwork task efficient.
- (ii) Consumer samples will often be drawn from the postal address file, where the unit of selection is a household rather than an individual. The selection of an individual from households of differing size means that the **probability of selection** will not be consistent – breaking a basic tenet of random probability sampling. In order to correct for this, post-survey weighting is required.

- (iii) Many surveys will involve **disproportionate samples**, in order to yield subgroups of sufficient size for analysis. Consumer surveys are often sampled disproportionately by region, so that there is sufficient representation of the smallest regions (e.g. East and South West Government Operational Research Services (GORSs)). Post-survey weighting is required to correct these imbalances. Differential response rates by different demographic groups will also need to be adjusted by **weighting**.

The aggregate impact of these three elements of any sample design will increase the sampling errors (and therefore confidence intervals) for the survey by a measurable factor. The **design effect** is the factor by which the variance of survey estimates will increase over a 'perfect' sample. The **design factor** is the factor by which sampling errors and confidence intervals will increase (and is equal to the square root of the design effect).

## 5.1 Clustering

A contributing factor to the size of sampling errors will be the effect of using a multistage sample rather than a single-stage, unclustered one in face-to-face surveys. This clustering effect is determined by the intra-cluster correlation of each particular variable – that is, the degree of similarity of respondents within a cluster.

The clustering effect for any variable within a survey may be calculated as follows:

$$\text{DEFF (cluster)} = 1 + (b-1)r$$

where  $b$  = no. of interviews in a cluster and  
 $r$  = intra-class correlation.

This correlation will differ for each variable. For example, variables such as tenure and class are more severely affected than those such as age and sex. Hence, the effect of clustering on sampling error cannot be calculated for the survey as a whole without an extensive stage of analysis. In this case, however, we have estimated a clustering effect based on the seven key health behaviours (converted into binary variables). The clustering effects for these have a median of 1.45.

If we take this mean value to be representative of the survey as a whole, then we state that the variance of estimates will be increased by 45%.

## 5.2 Probability of selection

The sampling frame used for this survey is the postal address file (PAF). This is a frame of households, rather than individuals. The sample design comprised several stages of selection.

- (i) Primary sampling units (PSU) were SOAs. These were stratified by Strategic Health Authority, Primary Care Trust within Strategic Health Authority, urbanity and IMD with probability proportional to the number of people aged 10–74 years. Within London, 29 addresses were selected per sample point. For the rest of the country, 25 addresses were selected per sample point.
- (ii) A boost sample was also employed, which was drawn from the 10% most deprived PSUs (SOAs) according to

the IMD. Within the boost sample, each PSU in London had 33 addresses selected and each PSU in the rest of the country had 29 addresses selected. This had the effect of skewing the sample regionally so that, for instance, the North East was over-represented in the sample. However, this regional skew is entirely a function of the boost of the most deprived areas and is treated in the weighting accordingly.

- (iii) Within the main sample, focused enumeration was also employed in order to boost the number of respondents from ethnic minority backgrounds. This involved selecting extra addresses within each SOA, specifically an adjacent address in the PAF. Respondents were then asked whether they knew the ethnic background of the selected neighbour and, if they were from an ethnic minority background, they were also included in the sample.
- (iv) Where there was more than one household at an address, all households were included in the sample. Thus each household had a broadly equal probability of selection.
- (v) Within household, a Kish grid was used to determine which household member to interview. This was used regardless of whether the selected householder was an adult or a child. In order to obtain interviews from sufficient numbers of children, all households where a child was present but where an adult was initially selected were revisited and the child also interviewed (where the respondent had indicated that they were willing to be re-contacted).

- (vi) The method of selection of individuals within household means that there is a slight reduction in the effective sample size that needs to be calculated via a probability of selection weight. In this instance, this is taken into account in the overall weight (see 5.3 below). However, it is also possible to separate out the weighting effect into the probability of selection and the post-stratification due to weighting back to the other demographic variables (namely IMD decile, ethnicity, working status, presence of children and age within gender). Using the formula given in 5.3, below, we can state that the design effect due to unequal probability of selection is 1.28, giving a weighting efficiency of 78%. The extra clustering caused by the focused enumeration is taken into account when calculating the clustering effect calculated in 5.1, above.
- (vii) We may also calculate the same for the boost sample of the most deprived areas. Using the same method, the design effect due to the boost of deprived areas is 1.55, giving a weighting efficiency of 65%. (Note that this is **not** the same as the weighting effect due to weighting to IMD overall, as the weighting takes into account the other nine deciles of IMD.)

### 5.3 Post-stratification weighting

The effect of survey weighting on the accuracy of survey estimates is referred to as the effective sample size (EFFSS). That is, the sample size for a pure probability sample that would yield a similar level of accuracy to the design in question. For example, a survey with an effective sample size of 70% would yield estimates with the accuracy of a pure

probability sample (e.g. no clustering or weighting) of 70% of its size.

The effective sample size is dependent upon the size of weights applied to respondents. In short, the more the weights deviate from 1, the smaller the effective sample size and the less accurate estimates will be.

There are two reasons for post-stratification weighting of a sample. The first is to correct for any disproportionate sampling. That is, to rebalance the sample so that it is representative of the population. In this survey, boosts were designed for people living in the 10% most deprived areas. Weighting is therefore required to reduce their impact on the total sample – back in line with the population.

The second reason is to correct for non-response bias. Inevitably, response rates will vary across different segments within the sample: e.g. by age, gender, social class. Post-survey weighting is used to correct the sample imbalances that result from this differential response. This weighting will have an impact on the effective sample size for the survey and will thus affect the size of survey errors.

The impact of weighting from disproportionate sampling is usually more extreme than that required to adjust non-response bias. For example, if a sample is balanced by GORS region, then corrective weighting will lead to an EFFSS of around 70% of the actual sample size. Correcting non-response bias will rarely lead to a reduction in EFFSS of more than 10%.

The effect of each stage of weighting is compounded, so that a design that draws disproportionate samples by region and has levels of demographic imbalance will yield an EFFSS that is in effect the product of both these factors.

The effective sample size for any survey may be calculated from the final weights, as follows:

$$\text{EFFSS} = \frac{[\sum w_i]^2 \times \text{sample size}}{\sum w_i^2}$$

where  $w_i$  = weight applied to  $i$ 'th respondent.

In this survey, the effective sample size is 39.2% of the total sample size. This corresponds to a design effect of 2.55.

Using the figure calculated above of the design effect due to probability of selection, we can break down this design effect into two components. First, the design effect due to the probability of selection is 1.28, implying that the design effect caused by the post-stratification (and implicit in that, the boost of the most deprived areas) is 1.99.

## 5.4 Total design effect

The total impact of the sample design is a compound of the clustering effect and the EFFSS produced by weighting. So, for this survey, the design effect would be:

$$\begin{aligned} \text{Design effect} &= \text{DEFF (clustering)} \times \text{DEFF (probability of selection)} \times \text{DEFF (weighting)} \\ &= 1.45 \times 1.99 \times 1.28 \\ &= 3.70 \end{aligned}$$

(Note the figures in the top row are slightly rounded.)

Thus, the design factor that must be applied to sample errors is given by:

$$\begin{aligned} \text{Design factor} &= \sqrt{\text{design effect}} \\ &= \sqrt{3.70} \\ &= 1.92 \end{aligned}$$

Hence confidence intervals would be increased by a factor of 1.92, which corresponds to an overall effective sample size of 27% of the unweighted sample for adults.

### 5.4.1 Design effect for individual questions

The design effects for the key behaviour questions are detailed in table A5.1.

**Table A5.1: Design effects for key questions**

	Fruit and veg	Exercise	Mental health	BMI	Smoking	Drugs	Alcohol	Mean	Median
<b>DEFF</b>	1.65	1.36	1.36	1.14	1.84	1.13	1.41	<b>1.41</b>	<b>1.36</b>
<b>DEFT</b>	1.29	1.17	1.17	1.07	1.36	1.06	1.19	<b>1.18</b>	<b>1.17</b>
<b>rho</b>	0.06	0.03	0.03	0.01	0.08	0.01	0.04	<b>0.04</b>	<b>0.03</b>

# Appendix 6: Inputs to the Motivation Ensemble

**Table A6.1: Factor analysis of motivation dimensions**

	Self-determination	Self-esteem	Belief in fate	Risk-taking	Goal setting	Impulse control	Aspirations	Aspirations	Response efficacy			Health as a value	Health consciousness	Health locus of control	Fatalistic regarding health	Self-positivity replacement	Health status	Intention to lead a healthy lifestyle	Perceptions of risk	Self-efficacy	Attitudes towards a healthy lifestyle
Self-determination		<b>.49**</b>	.05	.15	<b>.41**</b>	-.05	.20	.06	.15		Self-determination	.03	.18	.20*	-.04	-.14	.21*	.17	-.02	.23*	.10
Self-esteem	<b>.49**</b>		.05	.14	.39*	-.07	.14	.04	.17		Self-esteem	.05	.16	.23*	-.04	-.19	.26*	.17	-.03	.30*	.09
Belief in fate	.05	.05		.10	.08	.08	.06	.06	-.01		Belief in fate	.19	.08	.04	.16	.03	.03	.07	.03	.00	-.02
Risk-taking	.15	.14	.10		.14	.05	.09	.11	.03		Risk-taking	.00	.01	.11	.07	-.08	.01	.04	-.01	.04	.03
Goal setting	<b>.41**</b>	.39*	.08	.14		-.06	.25*	.07	.16		Goal setting	.07	.25*	.18	-.03	-.16	.24*	.23*	.01	.25*	.14
Impulse control	-.05	-.07	.08	.05	-.06		.06	.07	-.11		Impulse control	.10	-.01	.01	.13	.04	-.04	.00	-.04	-.10	-.03
Aspirations	.20	.14	.06	.09	.25*	.06		.23*	.17		Aspirations	.08	.19	.11	-.06	-.10	.16	.26*	.04	.18	.19
Aspirations	.06	.04	.06	.11	.07	.07	.23*		.06		Aspirations	.12	.09	.07	.08	-.07	.09	.10	-.06	.08	.04
Response efficacy	.15	.17	-.01	.03	.16	-.11	.17	.06			Response efficacy	.08	.18	.26*	-.16	-.19	.14	.24*	.06	.24*	.14
Health as a value	.03	.05	.19	.00	.07	.10	.08	.12	.08		Health as a value		.18	.09	.18	-.05	.08	.10	.09	.02	.06
Health consciousness	.18	.16	.08	.01	.25*	-.01	.19	.09	.18		Health consciousness	.18		.16	-.01	-.08	.30*	.37*	.12	.18	.20*
Health locus of control	.20*	.23*	.04	.11	.18	.01	.11	.07	.26*		Health locus of control	.09	.16		.02	-.27	.22*	.20	-.08	.31*	.12
Fatalistic regarding health	-.04	-.04	.16	.07	-.03	.13	-.06	.08	-.16		Fatalistic regarding health	.18	-.01	.02		.05	.00	-.07	-.02	-.10	-.05
Self-positivity replacement	-.14	-.19	.03	-.08	-.16	.04	-.10	-.07	-.19		Self-positivity replacement	-.05	-.08	-.27	.05		-.30	-.19	.09	-.27	-.14
Health status	.21*	.26*	.03	.01	.24*	-.04	.16	.09	.14		Health status	.08	.30*	.22*	.00	-.30		.55*	.01	<b>.44**</b>	.28*
Intention to lead a healthy lifestyle	.17	.17	.07	.04	.23*	.00	.26*	.10	.24*		Intention to lead a healthy lifestyle	.10	.37*	.20	-.07	-.19	.55**		.09	.35*	.30*
Perceptions of risk	-.02	-.03	.03	-.01	.01	-.04	.04	-.06	.06		Perceptions of risk	.09	.12	-.08	-.02	.09	.01	.09		-.01	.07
Self-efficacy	.23*	.30*	.00	.04	.25*	-.10	.18	.08	.24*		Self-efficacy	.02	.18	.31*	-.10	-.27	<b>.44**</b>	.35	-.01		.24*
Attitudes towards a healthy lifestyle	.10	.09	-.02	.03	.14	-.03	.19	.04	.14		Attitudes towards a healthy lifestyle	.06	.20*	.12	-.05	-.14	.28	.30	.07	.24*	

Throughout appendix 6, \* shows where a score or percentage is significantly (95% level) greater than the mean and ^ shows where the score or percentage is significantly less than the mean.

**Table A6.2: K means model based on uncentred respondents – four-cluster solution**

		Mean	4 clusters			
			1	2	3	4
Weighted			1,548	966	322	1,644
Unweighted			1,618	1,105	433	1,290
<b>Motivational constructs</b>	More health conscious	5.7	6.1*	4.9^	5.6	5.7
	Easier/more control over healthy lifestyle	5.4	5.8*	4.4^	5.1^	5.7*
	More likely to value health	5.3	6.1*	5.2	5.2	4.8^
	More risk-taking	4.5	4.8*	4.2^	4.1^	4.3
	Greater self-esteem	5.7	6.1*	4.9^	5.7	5.8
	Greater control over own health	5.4	5.9*	4.7^	4.8^	5.4
	More externally focused aspirations	4.5	5.0*	4.3^	4.4	4.2^
	More goal-setting behaviour	5.5	5.8*	4.7^	5.5	5.5
	Intend to lead a healthy lifestyle	5.8	6.1*	4.8^	5.8	5.9*
	Enjoy leading a healthy lifestyle	5.3	5.8*	4.4^	5.1	5.4
	More likely to get ill over next few years	2.8	2.5^	3.2*	3.0*	2.7
	Believe a healthy lifestyle reduces chance of getting ill	5.8	6.2*	5.5^	2.9^	6.2*
	Health at risk soon if lifestyle not healthy	3.5	3.5	3.4	3.3^	3.6
	More short-termist	4.6	5.2*	4.8	5.1*	3.8^
	Learn from mistakes	5.9	6.2*	5.3^	6.1*	5.9
	More fatalistic about health	3.4	4.3*	3.8*	4.2*	2.3^
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	44%*	28%^	29%^	47%*
	Five or more sessions of exercise a week	34%	37%*	29%^	32%^	36%*
	Low GHQ	82%	87%*	69%^	75%^	87%*
	Ideal BMI	44%	47%*	35%^	35%^	48%*
	Don't smoke nowadays	77%	81%*	66%^	73%^	81%*
	Never taken a class A drug	97%	98%*	95%^	99%*	97%^
	Never taken cannabis	94%	96%*	89%^	95%*	93%
	Below recommended alcohol consumption	68%	67%^	65%^	72%*	70%*

		Mean	4 clusters			
			1	2	3	4
	Weighted		1,548	966	322	1,644
	Unweighted		1,618	1,105	433	1,290
<b>IMD grouping</b>	1 – least deprived	20%	17% <sup>^</sup>	17% <sup>^</sup>	14% <sup>^</sup>	26% <sup>*</sup>
	2	20%	20%	18% <sup>^</sup>	16% <sup>^</sup>	22% <sup>*</sup>
	3	20%	22% <sup>*</sup>	17% <sup>^</sup>	15% <sup>^</sup>	21% <sup>*</sup>
	4	20%	21% <sup>*</sup>	23% <sup>*</sup>	27% <sup>*</sup>	16% <sup>^</sup>
	5	10%	9% <sup>^</sup>	12% <sup>*</sup>	10%	10%
	6 – most deprived	10%	11% <sup>*</sup>	13% <sup>*</sup>	19% <sup>*</sup>	5% <sup>^</sup>
<b>Age</b>	16–19	7%	6% <sup>^</sup>	10% <sup>*</sup>	7%	7% <sup>^</sup>
	20–24	9%	9%	10% <sup>*</sup>	10% <sup>*</sup>	9% <sup>^</sup>
	25–34	18%	19%	13% <sup>^</sup>	16% <sup>^</sup>	21% <sup>*</sup>
	35–44	21%	19% <sup>^</sup>	22% <sup>*</sup>	20% <sup>^</sup>	22% <sup>*</sup>
	45–54	18%	18% <sup>*</sup>	19% <sup>*</sup>	17% <sup>^</sup>	16% <sup>^</sup>
	55–64	16%	16%	15% <sup>^</sup>	15% <sup>^</sup>	17% <sup>*</sup>
	65–74	11%	13% <sup>*</sup>	12% <sup>*</sup>	16% <sup>*</sup>	9% <sup>^</sup>
<b>Gender</b>	Male	50%	52% <sup>*</sup>	52% <sup>*</sup>	47% <sup>^</sup>	47% <sup>^</sup>
	Female	50%	48% <sup>^</sup>	48% <sup>^</sup>	53% <sup>*</sup>	53% <sup>*</sup>
<b>Lifestage</b>	Freedom years – under 25	12%	12%	14% <sup>*</sup>	9% <sup>^</sup>	12%
	Freedom years – 25 and over	6%	6%	5% <sup>^</sup>	6% <sup>*</sup>	6% <sup>*</sup>
	Younger settlers	9%	8% <sup>^</sup>	6% <sup>^</sup>	4% <sup>^</sup>	13% <sup>*</sup>
	Older settlers	9%	9%	8% <sup>^</sup>	6% <sup>^</sup>	10% <sup>*</sup>
	Younger jugglers	26%	25% <sup>^</sup>	26%	31% <sup>*</sup>	25%
	Older jugglers	16%	17%	16%	16%	16%
	Alone again	9%	9%	11% <sup>*</sup>	9% <sup>^</sup>	8% <sup>^</sup>
	Active retirement – without partner	5%	5% <sup>*</sup>	6% <sup>*</sup>	6% <sup>*</sup>	3% <sup>^</sup>
	Active retirement – with partner	9%	10% <sup>*</sup>	9%	13% <sup>*</sup>	8% <sup>^</sup>
<b>Urban/rural</b>	Metropolitan areas	34%	35%	39% <sup>*</sup>	40% <sup>*</sup>	30% <sup>^</sup>
	Other urban	22%	20% <sup>^</sup>	22%	21% <sup>^</sup>	24% <sup>*</sup>
	Mixed urban/rural	32%	35% <sup>*</sup>	29% <sup>^</sup>	26% <sup>^</sup>	33%
	Rural	11%	10% <sup>^</sup>	10% <sup>^</sup>	14% <sup>*</sup>	13% <sup>*</sup>
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	6% <sup>*</sup>	5% <sup>^</sup>	2% <sup>^</sup>	6% <sup>*</sup>

		Mean	4 clusters			
			1	2	3	4
	Weighted		1,548	966	322	1,644
	Unweighted		1,618	1,105	433	1,290
<b>NS-SEC</b>	Higher professional occupations	7%	7%^	4%^	4%^	10%*
	Lower managerial and professional qualifications	23%	22%^	19%^	20%^	28%*
	Intermediate occupations	10%	9%^	11%*	10%	11%*
	Small employers and own account workers	10%	12%*	9%^	9%^	9%^
	Lower supervisory and technical occupations	10%	10%*	9%^	11%*	10%
	Semi-routine occupations	14%	15%*	17%*	18%*	10%^
	Routine occupations	14%	15%	19%*	19%*	10%^
	Never been in paid employment	4%	3%^	5%*	5%*	3%^
<b>Working status</b>	Working	66%	69%*	55%^	54%^	72%*
	Not working	13%	12%^	21%*	20%*	9%^
	Studying	8%	5%^	10%*	7%^	9%*
	Retired	13%	14%*	14%*	18%*	10%^
	Terminal education age	17.9	17.9	17.1^	16.5^	18.5*
<b>Ethnicity</b>	White British	90%	86%^	90%*	87%^	93%*
	Asian	4%	6%*	5%*	8%*	2%^
	Black	2%	4%*	2%^	3%*	1%^
	Other	4%	5%*	3%^	2%^	3%^
<b>Partner</b>	No partner in HH	39%	38%	46%*	39%	35%^
	Partner in HH	61%	62%	54%^	61%	66%*
<b>Presence of children</b>	Children under 16 in HH	35%	36%	34%^	41%*	34%^
	No children in HH	65%	64%	67%*	59%^	66%*

Table A6.3: K means model based on uncentred respondents – eight-cluster solution

		Mean	8 clusters							
			1	2	3	4	5	6	7	8
Weighted			1,033	246	448	240	236	757	1,093	427
Unweighted			986	372	447	212	304	528	1,072	525
<b>Motivational constructs</b>	More health conscious	5.7	6.2*	5.4^	4.4^	5.5^	5.7	5.7	5.8	5.6
	Easier/more control over healthy lifestyle	5.4	6.1*	3.4^	4.7^	5.3	5.2	5.7*	5.2^	5.6*
	More likely to value health	5.3	6.1*	5.4	4.7^	5.3	5.3	3.5^	6.0*	5.8*
	More risk-taking	4.5	5.0*	3.6^	4.4	4.9*	4.2^	4.6	4.1^	4.2^
	Greater self-esteem	5.7	6.2*	3.5^	5.6	5.4^	5.7	5.8*	5.7	5.8
	Greater control over own health	5.4	6.0*	3.8^	4.9^	5.1^	4.8^	5.4	5.4	5.5
	More externally focused aspirations	4.5	4.9*	4.3^	4.1^	4.7*	4.5	4.3^	4.4	4.8*
	More goal-setting behaviour	5.5	5.9*	4.2^	5.1^	5.0^	5.5	5.6*	5.5	5.6*
	Intend to lead a healthy lifestyle	5.8	6.3*	5.2^	4.1^	5.6^	5.8	6.0*	5.8	5.9*
	Enjoy leading a healthy lifestyle	5.3	6.5*	5.1	3.9^	5.2	5.3	5.6*	4.4^	5.9*
	More likely to get ill over next few years	2.8	2.3^	3.7*	3.0*	3.0*	3.0*	2.7	3.1*	2.1^
	Believe a healthy lifestyle reduces chance of getting ill	5.8	6.4*	5.1^	5.4^	5.7	2.6^	6.1*	6.0*	5.9
	Health at risk soon if lifestyle not healthy	3.5	3.8*	3.9*	3.0^	3.4	3.3^	3.5	3.7*	2.2^
	More short-termist	4.6	4.9*	4.6	4.8	4.4^	5.2*	3.7^	4.8	4.6
	Learn from mistakes	5.9	6.3*	5.6^	5.8	3.0^	6.1*	6.0*	6.1*	6.0*
More fatalistic about health	3.4	3.5	3.9*	3.5	3.3	4.0*	2.4^	3.7*	4.0*	
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	52%*	34%^	22%^	31%^	31%^	48%*	40%	36%^
	Five or more sessions of exercise a week	34%	38%*	25%^	31%^	38%*	33%^	37%*	33%^	34%
	Low GHQ	82%	89%*	42%^	84%*	70%^	73%^	88%*	84%*	85%*
	Ideal BMI	44%	52%*	26%^	37%^	47%*	39%^	55%*	36%^	44%
	Don't smoke nowadays	77%	83%*	65%^	59%^	71%^	73%^	85%*	76%^	82%*
	Never taken a class A drug	97%	98%*	97%^	96%^	89%^	98%*	98%*	98%*	99%*

		Mean	8 clusters							
			1	2	3	4	5	6	7	8
	Weighted		1,033	246	448	240	236	757	1,093	427
	Unweighted		986	372	447	212	304	528	1,072	525
<b>Health behaviours</b>	Never taken cannabis	94%	95%*	95%*	87% <sup>^</sup>	84% <sup>^</sup>	95%*	94%	95%*	97%*
	Below recommended alcohol consumption	68%	67% <sup>^</sup>	73%*	61% <sup>^</sup>	59% <sup>^</sup>	73%*	71%*	66% <sup>^</sup>	78%*
<b>IMD grouping</b>	1 – least deprived	20%	21%*	11% <sup>^</sup>	22%*	17% <sup>^</sup>	13% <sup>^</sup>	27%*	20%	15% <sup>^</sup>
	2	20%	23%*	14% <sup>^</sup>	20%	11% <sup>^</sup>	15% <sup>^</sup>	23%*	19% <sup>^</sup>	22%*
	3	20%	23%*	15% <sup>^</sup>	15% <sup>^</sup>	20%	17% <sup>^</sup>	20%	23%*	15% <sup>^</sup>
	4	20%	16% <sup>^</sup>	33%*	18% <sup>^</sup>	30%*	27%*	17% <sup>^</sup>	19% <sup>^</sup>	24%*
	5	10%	8% <sup>^</sup>	13%*	13%*	14%*	10%	9% <sup>^</sup>	11%*	8% <sup>^</sup>
	6 – most deprived	10%	9% <sup>^</sup>	15%*	13%*	9% <sup>^</sup>	18%*	4% <sup>^</sup>	9% <sup>^</sup>	16%*
<b>Age</b>	16–19	7%	4% <sup>^</sup>	2% <sup>^</sup>	14%*	13%*	6% <sup>^</sup>	11%*	5% <sup>^</sup>	6% <sup>^</sup>
	20–24	9%	7% <sup>^</sup>	4% <sup>^</sup>	11%*	16%*	10%*	12%*	7% <sup>^</sup>	13%*
	25–34	18%	19%*	8% <sup>^</sup>	16% <sup>^</sup>	18%	15% <sup>^</sup>	26%*	14% <sup>^</sup>	21%*
	35–44	21%	21%	26%*	24%*	20% <sup>^</sup>	22%*	21%	19% <sup>^</sup>	20% <sup>^</sup>
	45–54	18%	19%*	28%*	16% <sup>^</sup>	11% <sup>^</sup>	18%*	11% <sup>^</sup>	21%*	16% <sup>^</sup>
	55–64	16%	19%*	16%	12% <sup>^</sup>	14% <sup>^</sup>	12% <sup>^</sup>	13% <sup>^</sup>	21%*	11% <sup>^</sup>
	65–74	11%	12%	15%*	8% <sup>^</sup>	8% <sup>^</sup>	17%*	6% <sup>^</sup>	14%*	13%*
<b>Gender</b>	Male	50%	50%	40% <sup>^</sup>	61%*	54%*	50%	46% <sup>^</sup>	47% <sup>^</sup>	53%*
	Female	50%	50%	61%*	39% <sup>^</sup>	46% <sup>^</sup>	50%	54%*	53%*	47% <sup>^</sup>
<b>Lifestage</b>	Freedom years – under 25	12%	8% <sup>^</sup>	3% <sup>^</sup>	19%*	24%*	8% <sup>^</sup>	18%*	9% <sup>^</sup>	12%
	Freedom years – 25 and over	6%	5% <sup>^</sup>	9%*	4% <sup>^</sup>	3% <sup>^</sup>	5% <sup>^</sup>	7%*	5% <sup>^</sup>	10%*
	Younger settlers	9%	9%	4% <sup>^</sup>	9% <sup>^</sup>	9%	3% <sup>^</sup>	15%*	7% <sup>^</sup>	11%*
	Older settlers	9%	10%*	8% <sup>^</sup>	7% <sup>^</sup>	4% <sup>^</sup>	6% <sup>^</sup>	9%	12%*	6% <sup>^</sup>
	Younger jugglers	26%	26%	27%*	30%*	22% <sup>^</sup>	35%*	27%*	21% <sup>^</sup>	26%*
	Older jugglers	16%	19%*	21%*	14% <sup>^</sup>	13% <sup>^</sup>	17%	10% <sup>^</sup>	20%*	12% <sup>^</sup>
	Alone again	9%	10%*	10%*	12%*	14%*	9%	6% <sup>^</sup>	10%	8% <sup>^</sup>
	Active retirement – without partner	5%	5%	7%*	3% <sup>^</sup>	2% <sup>^</sup>	6%*	2% <sup>^</sup>	6%*	6%*
	Active retirement – with partner	9%	10%*	12%*	4% <sup>^</sup>	9%	12%*	5% <sup>^</sup>	11%*	8% <sup>^</sup>
<b>Urban/rural</b>	Metropolitan areas	34%	31% <sup>^</sup>	38%*	36%*	29% <sup>^</sup>	39%*	29% <sup>^</sup>	36%*	41%*
	Other urban	22%	21% <sup>^</sup>	24%*	21% <sup>^</sup>	34%*	22%	24%*	21% <sup>^</sup>	16% <sup>^</sup>
	Mixed urban/rural	32%	37%*	29% <sup>^</sup>	31% <sup>^</sup>	26% <sup>^</sup>	24% <sup>^</sup>	35%*	33%	30% <sup>^</sup>

		Mean	8 clusters							
			1	2	3	4	5	6	7	8
	Weighted		1,033	246	448	240	236	757	1,093	427
	Unweighted		986	372	447	212	304	528	1,072	525
<b>Urban/rural</b>	Rural	11%	11% <sup>^</sup>	9% <sup>^</sup>	13% <sup>*</sup>	11% <sup>^</sup>	15% <sup>*</sup>	12% <sup>*</sup>	10% <sup>^</sup>	13% <sup>*</sup>
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	7% <sup>*</sup>	5% <sup>^</sup>	7% <sup>*</sup>	7% <sup>*</sup>	2% <sup>^</sup>	5% <sup>^</sup>	6%	4% <sup>^</sup>
	Higher professional occupations	7%	9% <sup>*</sup>	6% <sup>^</sup>	5% <sup>^</sup>	2% <sup>^</sup>	4% <sup>^</sup>	12% <sup>*</sup>	6% <sup>^</sup>	6% <sup>^</sup>
	Lower managerial and professional qualifications	23%	25% <sup>*</sup>	20% <sup>^</sup>	21% <sup>^</sup>	22% <sup>^</sup>	22% <sup>^</sup>	29% <sup>*</sup>	21% <sup>^</sup>	21% <sup>^</sup>
	Intermediate occupations	10%	8% <sup>^</sup>	11% <sup>*</sup>	10%	8% <sup>^</sup>	10%	14% <sup>*</sup>	11%	9% <sup>^</sup>
	Small employers and own account workers	10%	12%	7% <sup>^</sup>	13% <sup>*</sup>	8% <sup>^</sup>	11% <sup>*</sup>	7% <sup>^</sup>	10% <sup>^</sup>	13% <sup>*</sup>
	Lower supervisory and technical occupations	10%	10% <sup>*</sup>	7% <sup>^</sup>	9% <sup>^</sup>	12% <sup>*</sup>	11% <sup>*</sup>	9% <sup>^</sup>	9% <sup>^</sup>	12% <sup>*</sup>
	Semi-routine occupations	14%	11% <sup>^</sup>	18% <sup>*</sup>	13% <sup>^</sup>	14% <sup>*</sup>	17% <sup>*</sup>	8% <sup>^</sup>	19% <sup>*</sup>	15% <sup>*</sup>
	Routine occupations	14%	13% <sup>^</sup>	17% <sup>*</sup>	19% <sup>*</sup>	18% <sup>*</sup>	18% <sup>*</sup>	8% <sup>^</sup>	15% <sup>*</sup>	16% <sup>*</sup>
	Never been in paid employment	4%	3% <sup>^</sup>	6% <sup>*</sup>	4% <sup>*</sup>	3% <sup>^</sup>	4%	5% <sup>*</sup>	4%	3% <sup>^</sup>
<b>Working status</b>	Working	66%	73% <sup>*</sup>	41% <sup>^</sup>	65%	64% <sup>^</sup>	54% <sup>^</sup>	71% <sup>*</sup>	66%	64% <sup>^</sup>
	Not working	13%	9% <sup>^</sup>	38% <sup>*</sup>	14% <sup>*</sup>	12% <sup>^</sup>	23% <sup>*</sup>	9% <sup>^</sup>	12% <sup>^</sup>	14% <sup>*</sup>
	Studying	8%	4% <sup>^</sup>	2% <sup>^</sup>	14% <sup>*</sup>	14% <sup>*</sup>	6% <sup>^</sup>	14% <sup>*</sup>	6% <sup>^</sup>	8%
	Retired	13%	14% <sup>*</sup>	19% <sup>*</sup>	7% <sup>^</sup>	10% <sup>^</sup>	18% <sup>*</sup>	7% <sup>^</sup>	16% <sup>*</sup>	14% <sup>*</sup>
	Terminal education age	17.9	18.3 <sup>*</sup>	16.9 <sup>^</sup>	17.5 <sup>^</sup>	17.7	16.5 <sup>^</sup>	19.1 <sup>*</sup>	17.4 <sup>^</sup>	17.6 <sup>^</sup>
<b>Ethnicity</b>	White British	90%	88% <sup>^</sup>	92% <sup>*</sup>	91% <sup>*</sup>	92% <sup>*</sup>	86% <sup>^</sup>	95% <sup>*</sup>	91% <sup>*</sup>	77% <sup>^</sup>
	Asian	4%	4% <sup>^</sup>	3% <sup>^</sup>	5%	3% <sup>^</sup>	8% <sup>*</sup>	1% <sup>^</sup>	4% <sup>^</sup>	13% <sup>*</sup>
	Black	2%	3% <sup>*</sup>	3%	2% <sup>^</sup>	1% <sup>^</sup>	4% <sup>*</sup>	1% <sup>^</sup>	2% <sup>^</sup>	4% <sup>*</sup>
	Other	4%	4% <sup>*</sup>	2% <sup>^</sup>	3%	5% <sup>*</sup>	2% <sup>^</sup>	3% <sup>^</sup>	3% <sup>^</sup>	6% <sup>*</sup>
<b>Partner</b>	No partner in HH	39%	32% <sup>^</sup>	42% <sup>*</sup>	46% <sup>*</sup>	52% <sup>*</sup>	38% <sup>^</sup>	38% <sup>^</sup>	37% <sup>^</sup>	46% <sup>*</sup>
	Partner in HH	61%	68% <sup>*</sup>	58% <sup>^</sup>	54% <sup>^</sup>	48% <sup>^</sup>	63% <sup>*</sup>	62% <sup>*</sup>	63% <sup>*</sup>	54% <sup>^</sup>
<b>Presence of children</b>	Children under 16 in HH	35%	37% <sup>*</sup>	31% <sup>^</sup>	36% <sup>*</sup>	33% <sup>^</sup>	46% <sup>*</sup>	38% <sup>*</sup>	30% <sup>^</sup>	34%
	No children in HH	65%	63% <sup>^</sup>	69% <sup>*</sup>	64% <sup>*</sup>	67% <sup>*</sup>	54% <sup>^</sup>	62% <sup>^</sup>	70% <sup>*</sup>	66%

**Table A6.4: K means model based on centred respondents – four-cluster solution**

		Mean	4 clusters			
			1	2	3	4
Weighted			1,374	1,163	1,035	907
Unweighted			1,122	1,067	1,348	909
<b>Motivational constructs</b>	More health conscious	5.7	5.9*	5.6	5.7	5.3^
	Easier/more control over healthy lifestyle	5.4	5.7*	5.7*	4.8^	5.2^
	More likely to value health	5.3	5.0^	5.4	5.9*	5.3
	More risk-taking	4.5	4.3	4.7*	4.3	4.6
	Greater self-esteem	5.7	5.9*	5.8	5.2^	5.9*
	Greater control over own health	5.4	5.4	5.7*	4.9^	5.4
	More externally focused aspirations	4.5	4.1^	4.9*	4.7	4.5
	More goal-setting behaviour	5.5	5.7*	5.5	5.1^	5.5
	Intend to lead a healthy lifestyle	5.8	6.1*	6.0*	5.6^	5.2^
	Enjoy leading a healthy lifestyle	5.3	6.0*	5.8*	5.7*	3.1^
	More likely to get ill over next few years	2.8	2.9*	1.9^	3.3*	3.0*
	Believe a healthy lifestyle reduces chance of getting ill	5.8	6.1*	5.9	5.4^	5.7
	Health at risk soon if lifestyle not healthy	3.5	3.9*	2.7^	4.0*	3.4
	More short-termist	4.6	3.9^	4.5	5.3*	4.9*
	Learn from mistakes	5.9	5.9	5.8	5.8	6.0
More fatalistic about health	3.4	2.3^	3.4	4.9*	3.6	
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	51%*	41%	35%^	31%^
	Five or more sessions of exercise a week	34%	35%	39%*	30%^	34%
	Low GHQ	82%	86%*	85%*	71%^	85%*
	Ideal BMI	44%	47%*	52%*	36%^	37%^
	Don't smoke nowadays	77%	84%*	82%*	73%^	66%^
	Never taken a class A drug	97%	96%^	98%*	98%*	97%^
	Never taken cannabis	94%	94%*	92%^	94%*	93%^
	Below recommended alcohol consumption	68%	70%*	66%^	72%*	64%^
<b>IMD grouping</b>	1 – least deprived	20%	26%*	21%	13%^	19%^
	2	20%	22%*	22%*	18%^	17%^

		Mean	4 clusters			
			1	2	3	4
	Weighted		1,374	1,163	1,035	907
	Unweighted		1,122	1,067	1,348	909
IMD grouping	3	20%	21%*	21%*	19% <sup>^</sup>	18% <sup>^</sup>
	4	20%	18% <sup>^</sup>	19% <sup>^</sup>	22%*	22%*
	5	10%	8% <sup>^</sup>	7% <sup>^</sup>	13%*	14%*
	6 – most deprived	10%	6% <sup>^</sup>	10%*	14%*	12%*
Age	16–19	7%	5% <sup>^</sup>	12%*	4% <sup>^</sup>	8%*
	20–24	9%	6% <sup>^</sup>	13%*	7% <sup>^</sup>	11%*
	25–34	18%	20%*	21%*	15% <sup>^</sup>	15% <sup>^</sup>
	35–44	21%	22%*	21%	21%	20% <sup>^</sup>
	45–54	18%	18%	16% <sup>^</sup>	18%*	18%*
	55–64	16%	18%*	10% <sup>^</sup>	19%*	18%*
	65–74	11%	11% <sup>^</sup>	7% <sup>^</sup>	17%*	11% <sup>^</sup>
Gender	Male	50%	45% <sup>^</sup>	55%*	48% <sup>^</sup>	51%*
	Female	50%	55%*	45% <sup>^</sup>	52%*	49% <sup>^</sup>
Lifestage	Freedom years – under 25	12%	8% <sup>^</sup>	20%*	7% <sup>^</sup>	13%*
	Freedom years – 25 and over	6%	4% <sup>^</sup>	8%*	6%	5% <sup>^</sup>
	Younger settlers	9%	11%*	11%*	5% <sup>^</sup>	9%
	Older settlers	9%	11%*	6% <sup>^</sup>	8% <sup>^</sup>	11%*
	Younger jugglers	26%	27%*	25% <sup>^</sup>	27%*	23%
	Older jugglers	16%	16%	14% <sup>^</sup>	18%*	17%*
	Alone again	9%	8% <sup>^</sup>	9%	9%	11%*
	Active retirement – without partner	5%	3% <sup>^</sup>	3% <sup>^</sup>	8%*	5%*
	Active retirement – with partner	9%	10%*	5% <sup>^</sup>	13%*	7% <sup>^</sup>
Urban/rural	Metropolitan areas	34%	30% <sup>^</sup>	34%	37%*	37%*
	Other urban	22%	26%*	20% <sup>^</sup>	22%	20% <sup>^</sup>
	Mixed urban/rural	32%	32% <sup>^</sup>	36%*	30% <sup>^</sup>	32%
	Rural	11%	13%*	10% <sup>^</sup>	11%	11%
NS-SEC	Large employers and higher managerial occupations	6%	7%*	5%	4% <sup>^</sup>	6%*
	Higher professional occupations	7%	11%*	8%*	4% <sup>^</sup>	4%
	Lower managerial and professional qualifications	23%	27%*	23%	19% <sup>^</sup>	24%

		Mean	4 clusters			
			1	2	3	4
	<b>Weighted</b>		1,374	1,163	1,035	907
	<b>Unweighted</b>		1,122	1,067	1,348	909
<b>NS-SEC</b>	Intermediate occupations	10%	11%	9%^	11%*	11%*
	Small employers and own account workers	10%	10%	11%*	10%	9%^
	Lower supervisory and technical occupations	10%	10%*	11%*	8%^	9%^
	Semi-routine occupations	14%	8%^	14%*	21%*	14%
	Routine occupations	14%	11%^	14%^	17%*	17%*
	Never been in paid employment	4%	4%	3%^	4%*	5%*
<b>Working status</b>	Working	66%	71%*	70%*	53%^	67%*
	Not working	13%	8%^	11%^	23%*	12%^
	Studying	8%	8%	11%*	4%^	9%*
	Retired	13%	13%	8%^	20%*	12%^
	Terminal education age	17.9	18.8*	18.0	16.9^	17.2^
<b>Ethnicity</b>	White British	90%	92%*	86%^	88%^	92%*
	Asian	4%	3%^	7%*	6%*	3%^
	Black	2%	1%^	3%*	3%*	2%*
	Other	4%	4%	4%*	4%	3%^
<b>Partner</b>	No partner in HH	39%	28%^	47%*	40%*	44%*
	Partner in HH	61%	72%*	54%^	60%^	56%^
<b>Presence of children</b>	Children under 16 in HH	35%	37%*	37%*	33%^	31%^
	No children in HH	65%	63%^	63%^	67%*	69%*

Table A6.5: K means model based on centered respondents – five-cluster solution

		Mean	5 clusters				
			1	2	3	4	5
Weighted			1,255	839	964	586	835
Unweighted			1,000	763	1,065	778	840
<b>Motivational constructs</b>	More health conscious	5.7	5.8*	5.7	5.3^	5.9*	5.5^
	Easier/more control over healthy lifestyle	5.4	5.8*	5.7*	5.4	4.4^	5.2^
	More likely to value health	5.3	4.9^	5.2	5.7*	5.7*	5.4
	More risk-taking	4.5	4.3^	4.8*	4.7*	4.2^	4.4
	Greater self-esteem	5.7	5.9*	5.9*	5.5^	5.1^	5.9*
	Greater control over own health	5.4	5.6*	5.6*	5.7*	4.0^	5.4
	More externally focused aspirations	4.5	4.1^	4.9*	4.9*	4.5	4.5
	More goal-setting behaviour	5.5	5.7*	5.7*	5.0^	5.3^	5.6
	Intend to lead a healthy lifestyle	5.8	6.1*	6.0*	5.5^	5.6^	5.4^
	Enjoy leading a healthy lifestyle	5.3	6.1*	5.8*	5.7*	5.6*	3.0^
	More likely to get ill over next few years	2.8	2.8	1.8^	2.8	3.9*	3.0*
	Believe a healthy lifestyle reduces chance of getting ill	5.8	6.2*	5.9	5.6^	5.4^	5.7
	Health at risk soon if lifestyle not healthy	3.5	3.8*	2.5^	3.5	4.3*	3.5
	More short-termist	4.6	3.8^	4.4	5.4*	5.0*	4.6
	Learn from mistakes	5.9	6.0	5.9	5.5^	5.9	6.1*
	More fatalistic about health	3.4	2.3^	3.2	4.7*	4.0*	3.5
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	50%*	42%*	32%^	43%*	32%^
	Five or more sessions of exercise a week	34%	36%*	38%*	35%	27%^	34%
	Low GHQ	82%	88%*	86%*	79%^	63%^	86%*
	Ideal BMI	44%	50%*	54%*	44%	30%^	34%^
	Don't smoke nowadays	77%	85%*	83%*	69%^	74%^	72%^
	Never taken a class A drug	97%	97%^	98%*	96%^	97%^	98%*
	Never taken cannabis	94%	95%*	92%^	93%^	95%*	94%
	Below recommended alcohol consumption	68%	70%*	68%	64%^	74%*	65%^

		Mean	5 clusters				
			1	2	3	4	5
	Weighted		1,255	839	964	586	835
	Unweighted		1,000	763	1,065	778	840
<b>IMD grouping</b>	1 – least deprived	20%	26%*	21%*	17% <sup>^</sup>	14% <sup>^</sup>	19% <sup>^</sup>
	2	20%	21%*	24%*	21%	17% <sup>^</sup>	16% <sup>^</sup>
	3	20%	22%*	21%*	18% <sup>^</sup>	19% <sup>^</sup>	20%
	4	20%	18% <sup>^</sup>	18% <sup>^</sup>	21%*	24%*	22%*
	5	10%	9% <sup>^</sup>	7% <sup>^</sup>	11%*	14%*	12%*
	6 – most deprived	10%	5% <sup>^</sup>	10%*	13%*	13%*	11%*
<b>Age</b>	16–19	7%	5% <sup>^</sup>	11%*	9%*	2% <sup>^</sup>	7%
	20–24	9%	8% <sup>^</sup>	15%*	10%*	3% <sup>^</sup>	9%
	25–34	18%	21%*	22%*	18%	12% <sup>^</sup>	14% <sup>^</sup>
	35–44	21%	22%*	22%*	20% <sup>^</sup>	21%	19% <sup>^</sup>
	45–54	18%	17% <sup>^</sup>	14% <sup>^</sup>	18%	21%*	20%*
	55–64	16%	17%*	9% <sup>^</sup>	14% <sup>^</sup>	23%*	19%*
	65–74	11%	10% <sup>^</sup>	7% <sup>^</sup>	12%*	18%*	12%*
<b>Gender</b>	Male	50%	45% <sup>^</sup>	56%*	52%*	47% <sup>^</sup>	49%
	Female	50%	55%*	44% <sup>^</sup>	48% <sup>^</sup>	53%*	51%
<b>Lifestage</b>	Freedom years – under 25	12%	10% <sup>^</sup>	20%*	13%*	3% <sup>^</sup>	11% <sup>^</sup>
	Freedom years – 25 and over	6%	5% <sup>^</sup>	8%*	7%*	5% <sup>^</sup>	4% <sup>^</sup>
	Younger settlers	9%	12%*	12%*	6% <sup>^</sup>	5% <sup>^</sup>	9%
	Older settlers	9%	11%*	6% <sup>^</sup>	7% <sup>^</sup>	11%*	12%*
	Younger jugglers	26%	27%*	26%	28%*	22% <sup>^</sup>	22% <sup>^</sup>
	Older jugglers	16%	15% <sup>^</sup>	11% <sup>^</sup>	17%*	21%*	18%*
	Alone again	9%	7% <sup>^</sup>	10%*	10%*	9%	10%*
	Active retirement – without partner	5%	3% <sup>^</sup>	2% <sup>^</sup>	5%*	8%*	5%*
	Active retirement – with partner	9%	9%*	5% <sup>^</sup>	8% <sup>^</sup>	15%*	8% <sup>^</sup>
<b>Urban/rural</b>	Metropolitan areas	34%	31% <sup>^</sup>	32% <sup>^</sup>	40%*	33% <sup>^</sup>	36%*
	Other urban	22%	24%*	21% <sup>^</sup>	20% <sup>^</sup>	25%*	21% <sup>^</sup>
	Mixed urban/rural	32%	32%	36%*	31% <sup>^</sup>	32%	33%
	Rural	11%	14%*	11% <sup>^</sup>	10% <sup>^</sup>	11% <sup>^</sup>	10% <sup>^</sup>

		Mean	5 clusters				
			1	2	3	4	5
Weighted			1,255	839	964	586	835
Unweighted			1,000	763	1,065	778	840
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	7%*	6%	7%*	5%^	4%^
	Higher professional occupations	7%	10%*	8%*	5%^	7%	5%^
	Lower managerial and professional qualifications	23%	27%*	25%*	18%^	24%	24%
	Intermediate occupations	10%	10%	9%^	11%*	8%^	12%*
	Small employers and own account workers	10%	11%*	11%	11%*	8%^	10%^
	Lower supervisory and technical occupations	10%	9%^	10%*	9%^	10%	11%*
	Semi-routine occupations	14%	9%^	14%	18%*	16%*	15%*
	Routine occupations	14%	12%^	13%^	16%*	17%*	15%*
	Never been in paid employment	4%	4%*	3%^	4%*	3%^	4%*
<b>Working status</b>	Working	66%	71%*	73%*	63%^	49%^	66%
	Not working	13%	8%^	10%^	17%*	26%*	12%^
	Studying	8%	8%*	10%*	8%	2%^	9%*
	Retired	13%	13%^	7%^	13%^	23%*	13%
Terminal education age		17.9	18.8*	18.2*	17.0^	17.7	17.2^
<b>Ethnicity</b>	White British	90%	92%*	87%^	87%^	89%	92%*
	Asian	4%	3%^	6%*	7%*	5%*	3%^
	Black	2%	1%^	4%*	3%*	2%	3%
	Other	4%	4%*	4%*	4%*	4%	2%^
<b>Partner</b>	No partner in HH	39%	30%^	48%*	45%*	33%^	40%*
	Partner in HH	61%	70%*	52%^	55%^	67%*	60%^
<b>Presence of children</b>	Children under 16 in HH	35%	38%*	36%*	38%*	27%^	32%^
	No children in HH	65%	62%^	64%^	62%^	73%*	68%*

**Table A6.6: K means model based on centred respondents – six-cluster solution**

		Mean	6 clusters					
			1	2	3	4	5	6
Weighted			1,230	367	280	1,017	735	851
Unweighted			983	333	372	967	952	839
<b>Motivational constructs</b>	More health conscious	5.7	5.9*	5.6	5.4^	5.6	5.8*	5.4^
	Easier/more control over healthy lifestyle	5.4	5.9*	5.3	5.1^	5.7*	4.6^	5.2^
	More likely to value health	5.3	4.9^	5.5*	5.0^	5.5	5.8*	5.5
	More risk-taking	4.5	4.3^	5.1*	4.7*	4.6	4.2^	4.5
	Greater self-esteem	5.7	6.0*	5.4^	5.7	5.8	5.1^	5.9*
	Greater control over own health	5.4	5.6*	5.4	4.9^	5.7*	4.7^	5.5
	More externally focused aspirations	4.5	4.0^	5.0*	4.5	4.9*	4.7	4.5
	More goal-setting behaviour	5.5	5.7*	5.0^	5.4	5.5	5.2^	5.5
	Intend to lead a healthy lifestyle	5.8	6.1*	5.6^	5.6^	5.9*	5.7	5.3^
	Enjoy leading a healthy lifestyle	5.3	6.1*	5.2	5.2	5.9*	5.8*	3.1^
	More likely to get ill over next few years	2.8	2.8	2.9*	3.1*	1.9^	3.6*	3.0*
	Believe a healthy lifestyle reduces chance of getting ill	5.8	6.2*	5.9	2.8^	6.1*	5.8	5.9
	Health at risk soon if lifestyle not healthy	3.5	3.8*	3.5	3.4	2.7^	4.2*	3.5
	More short-termist	4.6	3.8^	4.7	5.4*	4.6	5.1*	4.8
	Learn from mistakes	5.9	6.1*	3.6^	6.1*	6.1*	6.1*	6.1*
	More fatalistic about health	3.4	2.3^	3.5	4.2*	3.7*	4.4*	3.7*

		Mean	6 clusters					
			1	2	3	4	5	6
	Weighted		1,230	367	280	1,017	735	851
	Unweighted		983	333	372	967	952	839
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	52%*	36% <sup>^</sup>	30% <sup>^</sup>	41%	39% <sup>^</sup>	31% <sup>^</sup>
	Five or more sessions of exercise a week	34%	36%*	36%*	36%*	37%*	26%	35%
	Low GHQ	82%	88%*	74% <sup>^</sup>	77% <sup>^</sup>	86%*	68% <sup>^</sup>	87%*
	Ideal BMI	44%	48%*	49%*	39% <sup>^</sup>	52%*	32% <sup>^</sup>	38% <sup>^</sup>
	Don't smoke nowadays	77%	85%*	72% <sup>^</sup>	68% <sup>^</sup>	81%*	77%	68% <sup>^</sup>
	Never taken a class A drug	97%	98%*	88% <sup>^</sup>	98%*	98%*	99%*	97% <sup>^</sup>
	Never taken cannabis	94%	95%*	85% <sup>^</sup>	95%*	93% <sup>^</sup>	96%*	93%
	Below recommended alcohol consumption	68%	71%*	58% <sup>^</sup>	68%	68%	74%*	64% <sup>^</sup>
<b>IMD grouping</b>	1 – least deprived	20%	25%*	18% <sup>^</sup>	16% <sup>^</sup>	21%	15% <sup>^</sup>	19% <sup>^</sup>
	2	20%	23%*	16% <sup>^</sup>	19% <sup>^</sup>	22%*	19% <sup>^</sup>	17% <sup>^</sup>
	3	20%	22%*	17% <sup>^</sup>	16% <sup>^</sup>	22%*	19% <sup>^</sup>	19%
	4	20%	17% <sup>^</sup>	28%*	22%*	19% <sup>^</sup>	22%*	20%
	5	10%	9% <sup>^</sup>	11%*	10%	7% <sup>^</sup>	12%*	14%*
	6 – most deprived	10%	5% <sup>^</sup>	10% <sup>^</sup>	16%*	11%*	13%*	11%*
<b>Age</b>	16–19	7%	5% <sup>^</sup>	8%*	8%*	11%*	3% <sup>^</sup>	8%*
	20–24	9%	6% <sup>^</sup>	19%*	9% <sup>^</sup>	12%*	5% <sup>^</sup>	10%*
	25–34	18%	21%*	17% <sup>^</sup>	16% <sup>^</sup>	23%*	13% <sup>^</sup>	13% <sup>^</sup>
	35–44	21%	22%*	24%*	23%*	20% <sup>^</sup>	21%	20% <sup>^</sup>
	45–54	18%	18%	11% <sup>^</sup>	19%*	16% <sup>^</sup>	21%*	20%*
	55–64	16%	18%*	13% <sup>^</sup>	13% <sup>^</sup>	11% <sup>^</sup>	20%*	18%*
	65–74	11%	10% <sup>^</sup>	9% <sup>^</sup>	12%*	8% <sup>^</sup>	18%*	12%
<b>Gender</b>	Male	50%	45% <sup>^</sup>	55%*	46% <sup>^</sup>	54%*	50%	51%
	Female	50%	56%*	46% <sup>^</sup>	54%*	46% <sup>^</sup>	50%	49%

		Mean	6 clusters					
			1	2	3	4	5	6
Weighted			1,230	367	280	1,017	735	851
Unweighted			983	333	372	967	952	839
<b>Lifestage</b>	Freedom years – under 25	12%	9% <sup>^</sup>	22% <sup>*</sup>	9% <sup>^</sup>	18% <sup>*</sup>	5% <sup>^</sup>	12%
	Freedom years – 25 and over	6%	5% <sup>^</sup>	2% <sup>^</sup>	7% <sup>*</sup>	9% <sup>*</sup>	7% <sup>*</sup>	4% <sup>^</sup>
	Younger settlers	9%	11% <sup>*</sup>	8% <sup>^</sup>	4% <sup>^</sup>	11% <sup>*</sup>	6% <sup>^</sup>	8% <sup>^</sup>
	Older settlers	9%	12% <sup>*</sup>	4% <sup>^</sup>	7% <sup>^</sup>	6% <sup>^</sup>	9%	12% <sup>*</sup>
	Younger jugglers	26%	27% <sup>*</sup>	27% <sup>*</sup>	33% <sup>*</sup>	25% <sup>^</sup>	23% <sup>^</sup>	23% <sup>^</sup>
	Older jugglers	16%	16%	12% <sup>^</sup>	16%	14% <sup>^</sup>	21% <sup>*</sup>	18% <sup>*</sup>
	Alone again	9%	8% <sup>^</sup>	14% <sup>*</sup>	10% <sup>*</sup>	10% <sup>*</sup>	7% <sup>^</sup>	10% <sup>*</sup>
	Active retirement – without partner	5%	3% <sup>^</sup>	2% <sup>^</sup>	6% <sup>*</sup>	3% <sup>^</sup>	8% <sup>*</sup>	5% <sup>*</sup>
	Active retirement – with partner	9%	10% <sup>*</sup>	8% <sup>^</sup>	9%	5% <sup>^</sup>	14% <sup>*</sup>	8% <sup>^</sup>
<b>Urban/rural</b>	Metropolitan areas	34%	31% <sup>^</sup>	33% <sup>^</sup>	36% <sup>*</sup>	34%	35%	38% <sup>*</sup>
	Other urban	22%	24% <sup>*</sup>	29% <sup>*</sup>	21% <sup>^</sup>	21% <sup>^</sup>	21% <sup>^</sup>	20% <sup>^</sup>
	Mixed urban/ rural	32%	33%	27% <sup>^</sup>	29% <sup>^</sup>	36% <sup>*</sup>	33%	31% <sup>^</sup>
	Rural	11%	13% <sup>*</sup>	12% <sup>*</sup>	14% <sup>*</sup>	8% <sup>^</sup>	12% <sup>*</sup>	11% <sup>^</sup>
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	7% <sup>*</sup>	7% <sup>*</sup>	3% <sup>^</sup>	5% <sup>^</sup>	5% <sup>^</sup>	6%
	Higher professional occupations	7%	11% <sup>*</sup>	6% <sup>^</sup>	3% <sup>^</sup>	8% <sup>*</sup>	5% <sup>^</sup>	5% <sup>^</sup>
	Lower managerial and professional qualifications	23%	27% <sup>*</sup>	21% <sup>^</sup>	17% <sup>^</sup>	21% <sup>^</sup>	22% <sup>^</sup>	24% <sup>*</sup>
	Intermediate occupations	10%	10%	8% <sup>^</sup>	10%	10% <sup>^</sup>	11% <sup>*</sup>	11% <sup>*</sup>
	Small employers and own account workers	10%	10% <sup>^</sup>	9% <sup>^</sup>	10% <sup>^</sup>	13% <sup>*</sup>	8% <sup>^</sup>	10%

		Mean	6 clusters					
			1	2	3	4	5	6
Weighted			1,230	367	280	1,017	735	851
Unweighted			983	333	372	967	952	839
<b>NS-SEC</b>	Lower supervisory and technical occupations	10%	10%	11%*	13%*	10%	9% <sup>^</sup>	9% <sup>^</sup>
	Semi-routine occupations	14%	10% <sup>^</sup>	13% <sup>^</sup>	21%*	14%*	18%*	14%
	Routine occupations	14%	10% <sup>^</sup>	18%*	17%*	14% <sup>^</sup>	15%*	17%*
	Never been in paid employment	4%	4%*	3% <sup>^</sup>	5%*	3% <sup>^</sup>	4%*	4%*
<b>Working status</b>	Working	66%	72%*	68%*	55%	69%*	54% <sup>^</sup>	67%*
	Not working	13%	8% <sup>^</sup>	13%	21%*	13%	22%*	11% <sup>^</sup>
	Studying	8%	8%	8%*	9%*	10%*	3%	9%*
	Retired	13%	13%	11% <sup>^</sup>	15%*	8% <sup>^</sup>	21%*	13%
	Terminal education age	17.9	18.8*	17.6	16.4 <sup>^</sup>	18.0	17.5 <sup>^</sup>	17.1 <sup>^</sup>
<b>Ethnicity</b>	White British	90%	92%*	91%*	93%*	84% <sup>^</sup>	89% <sup>^</sup>	92%*
	Asian	4%	3% <sup>^</sup>	4% <sup>^</sup>	2% <sup>^</sup>	8%*	5%*	3% <sup>^</sup>
	Black	2%	1% <sup>^</sup>	1% <sup>^</sup>	3%*	3%*	3%*	2%*
	Other	4%	4%*	5%*	1% <sup>^</sup>	5%*	3% <sup>^</sup>	3% <sup>^</sup>
<b>Partner</b>	No partner in HH	39%	29% <sup>^</sup>	48%*	42%*	46%*	35% <sup>^</sup>	43%*
	Partner in HH	61%	71%*	52% <sup>^</sup>	58% <sup>^</sup>	54% <sup>^</sup>	65%*	57% <sup>^</sup>
<b>Presence of children</b>	Children under 16 in HH	35%	37%*	35%	42%*	36%*	30% <sup>^</sup>	32% <sup>^</sup>
	No children in HH	65%	63% <sup>^</sup>	65%	58% <sup>^</sup>	64% <sup>^</sup>	70%*	68%*

**Table A6.7: K means model based on centred respondents – seven-cluster solution**

		Mean	7 clusters						
			1	2	3	4	5	6	7
Weighted			1,158	854	239	251	773	465	739
Unweighted			914	933	222	351	687	621	718
<b>Motivational constructs</b>	More health conscious	5.7	5.9*	5.3^	5.7	5.5^	5.7	6.0*	5.6
	Easier/more control over healthy lifestyle	5.4	5.9*	5.4	5.3	5.0^	5.7*	4.3^	5.2^
	More likely to value health	5.3	5.0^	5.8*	5.4	5.0^	5.2	5.8*	5.5
	More risk-taking	4.5	4.3^	4.6	5.0*	4.5	4.7*	4.2^	4.4
	Greater self-esteem	5.7	6.0*	5.4^	5.3^	5.7	5.9*	5.1^	5.9*
	Greater control over own health	5.4	5.6*	5.7*	5.4	4.9^	5.6*	3.9^	5.5
	More externally focused aspirations	4.5	4.1^	4.8*	4.9*	4.5	4.8*	4.6	4.5
	More goal-setting behaviour	5.5	5.7*	5.1^	5.0^	5.5	5.7*	5.3^	5.6
	Intend to lead a healthy lifestyle	5.8	6.1*	5.5^	5.7	5.7	6.0*	5.6^	5.4^
	Enjoy leading a healthy lifestyle	5.3	6.2*	5.8*	5.0^	5.1	5.8*	5.5	2.9^
	More likely to get ill over next few years	2.8	2.8	2.8	2.9*	3.1*	1.7^	3.9*	2.9*
	Believe a healthy lifestyle reduces chance of getting ill	5.8	6.2*	5.9	5.9	2.6^	6.1*	5.7	5.9
	Health at risk soon if lifestyle not healthy	3.5	3.8*	3.5	3.5	3.4	2.5^	4.3*	3.5
	More short-termist	4.6	3.9^	5.5*	4.5	5.4*	4.2^	4.9*	4.6
	Learn from mistakes	5.9	6.1*	5.9	2.9^	6.2*	6.1*	6.0*	6.1*
More fatalistic about health	3.4	2.3^	4.7*	3.4	4.2*	3.2^	3.9*	3.5	

		Mean	7 clusters						
			1	2	3	4	5	6	7
Weighted			1,158	854	239	251	773	465	739
Unweighted			914	933	222	351	687	621	718
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	50%*	35% <sup>^</sup>	35% <sup>^</sup>	31% <sup>^</sup>	43%*	44%*	32% <sup>^</sup>
	Five or more sessions of exercise a week	34%	35%	33% <sup>^</sup>	39%*	37%*	38%*	26% <sup>^</sup>	34%
	Low GHQ	82%	89%*	81% <sup>^</sup>	74% <sup>^</sup>	74% <sup>^</sup>	86%*	63% <sup>^</sup>	87%*
	Ideal BMI	44%	49%*	44%	48%*	36% <sup>^</sup>	56%*	29% <sup>^</sup>	34% <sup>^</sup>
	Don't smoke nowadays	77%	84%*	72% <sup>^</sup>	72% <sup>^</sup>	68% <sup>^</sup>	82%*	78%*	71% <sup>^</sup>
	Never taken a class A drug	97%	97% <sup>^</sup>	98%*	88% <sup>^</sup>	98%*	98%*	97% <sup>^</sup>	98%*
	Never taken cannabis	94%	94%*	94%*	85% <sup>^</sup>	94%*	93% <sup>^</sup>	96%*	94%
	Below recommended alcohol consumption	68%	71%*	63% <sup>^</sup>	56% <sup>^</sup>	71%*	69%*	77%*	65% <sup>^</sup>
<b>IMD grouping</b>	1 – least deprived	20%	26%*	17% <sup>^</sup>	12% <sup>^</sup>	16% <sup>^</sup>	22%*	15% <sup>^</sup>	20%
	2	20%	22%*	23%*	11% <sup>^</sup>	17% <sup>^</sup>	25%*	16% <sup>^</sup>	16% <sup>^</sup>
	3	20%	22%*	19%	21%*	16% <sup>^</sup>	19% <sup>^</sup>	19% <sup>^</sup>	20%
	4	20%	17% <sup>^</sup>	18% <sup>^</sup>	35%*	23%*	19% <sup>^</sup>	23%*	22%*
	5	10%	8% <sup>^</sup>	11%*	11%*	10%	6% <sup>^</sup>	15%*	12%*
	6 – most deprived	10%	5% <sup>^</sup>	13%*	10%	18%*	10%	13%*	10%
<b>Age</b>	16–19	7%	5% <sup>^</sup>	7%	10%*	8%*	11%*	3% <sup>^</sup>	7%
	20–24	9%	7% <sup>^</sup>	10%*	20%*	8% <sup>^</sup>	13%*	2% <sup>^</sup>	10%*
	25–34	18%	21%*	19%	16% <sup>^</sup>	16% <sup>^</sup>	23%*	12% <sup>^</sup>	13% <sup>^</sup>
	35–44	21%	22%	20% <sup>^</sup>	21%	22%*	22%*	23%*	19% <sup>^</sup>
	45–54	18%	18%	19%*	11% <sup>^</sup>	21%*	14% <sup>^</sup>	18%*	20%*
	55–64	16%	18%*	14% <sup>^</sup>	13% <sup>^</sup>	13% <sup>^</sup>	10% <sup>^</sup>	24%*	19%*
	65–74	11%	10% <sup>^</sup>	12%*	9% <sup>^</sup>	13%*	7% <sup>^</sup>	19%*	12%*
<b>Gender</b>	Male	50%	44% <sup>^</sup>	52%*	56%*	45% <sup>^</sup>	56%*	47% <sup>^</sup>	50%
	Female	50%	56%*	48% <sup>^</sup>	44% <sup>^</sup>	56%*	44% <sup>^</sup>	54%*	50%

		Mean	7 clusters						
			1	2	3	4	5	6	7
Weighted			1,158	854	239	251	773	465	739
Unweighted			914	933	222	351	687	621	718
<b>Lifestage</b>	Freedom years – under 25	12%	9% <sup>^</sup>	12% <sup>*</sup>	27% <sup>*</sup>	9% <sup>^</sup>	18% <sup>*</sup>	4% <sup>^</sup>	11% <sup>^</sup>
	Freedom years – 25 and over	6%	5% <sup>^</sup>	7% <sup>*</sup>	3% <sup>^</sup>	7% <sup>*</sup>	9% <sup>*</sup>	6% <sup>^</sup>	4% <sup>^</sup>
	Younger settlers	9%	12% <sup>*</sup>	6% <sup>^</sup>	7% <sup>^</sup>	4% <sup>^</sup>	12% <sup>*</sup>	6% <sup>^</sup>	9% <sup>*</sup>
	Older settlers	9%	11% <sup>*</sup>	7% <sup>^</sup>	3% <sup>^</sup>	6% <sup>^</sup>	6% <sup>^</sup>	12% <sup>*</sup>	12% <sup>*</sup>
	Younger jugglers	26%	26%	29% <sup>*</sup>	23% <sup>^</sup>	32% <sup>*</sup>	26%	22% <sup>^</sup>	22% <sup>^</sup>
	Older jugglers	16%	16%	18% <sup>*</sup>	13% <sup>^</sup>	17% <sup>*</sup>	12% <sup>^</sup>	18% <sup>*</sup>	19% <sup>*</sup>
	Alone again	9%	8% <sup>^</sup>	9% <sup>^</sup>	14% <sup>*</sup>	10%	10% <sup>*</sup>	9% <sup>^</sup>	10% <sup>*</sup>
	Active retirement – without partner	5%	4% <sup>^</sup>	6% <sup>*</sup>	2% <sup>^</sup>	7% <sup>*</sup>	2% <sup>^</sup>	8% <sup>*</sup>	5% <sup>*</sup>
	Active retirement – with partner	9%	9% <sup>*</sup>	8% <sup>^</sup>	9% <sup>*</sup>	9%	5% <sup>^</sup>	16% <sup>*</sup>	8% <sup>^</sup>
<b>Urban/rural</b>	Metropolitan areas	34%	30% <sup>^</sup>	39% <sup>*</sup>	32% <sup>^</sup>	39% <sup>*</sup>	33% <sup>^</sup>	33% <sup>^</sup>	36% <sup>*</sup>
	Other urban	22%	24% <sup>*</sup>	18% <sup>^</sup>	33% <sup>*</sup>	20% <sup>^</sup>	20% <sup>^</sup>	25% <sup>*</sup>	21% <sup>^</sup>
	Mixed urban/rural	32%	32%	33%	24% <sup>^</sup>	27% <sup>^</sup>	38% <sup>*</sup>	32% <sup>^</sup>	32%
	Rural	11%	13% <sup>*</sup>	10% <sup>^</sup>	11% <sup>^</sup>	13% <sup>*</sup>	10% <sup>^</sup>	11%	11%
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	7% <sup>*</sup>	7% <sup>*</sup>	7% <sup>*</sup>	3% <sup>^</sup>	5% <sup>^</sup>	5% <sup>^</sup>	4% <sup>^</sup>
	Higher professional occupations	7%	11% <sup>*</sup>	4% <sup>^</sup>	4% <sup>^</sup>	4% <sup>^</sup>	9% <sup>*</sup>	8% <sup>*</sup>	5% <sup>^</sup>
	Lower managerial and professional qualifications	23%	26% <sup>*</sup>	18% <sup>^</sup>	25% <sup>*</sup>	16% <sup>^</sup>	26% <sup>*</sup>	25% <sup>*</sup>	24%
	Intermediate occupations	10%	10%	11% <sup>*</sup>	9% <sup>^</sup>	10%	9% <sup>^</sup>	8% <sup>^</sup>	12% <sup>*</sup>
	Small employers and own account workers	10%	11% <sup>*</sup>	13% <sup>*</sup>	4% <sup>^</sup>	10% <sup>^</sup>	10% <sup>^</sup>	8% <sup>^</sup>	10%
	Lower supervisory and technical occupations	10%	10%	8% <sup>^</sup>	11% <sup>*</sup>	13% <sup>*</sup>	10%	10%	10% <sup>*</sup>
	Semi-routine occupations	14%	9% <sup>^</sup>	17% <sup>*</sup>	15% <sup>*</sup>	21% <sup>*</sup>	14%	14%	15% <sup>*</sup>
	Routine occupations	14%	11% <sup>^</sup>	16% <sup>*</sup>	18% <sup>*</sup>	17% <sup>*</sup>	12% <sup>^</sup>	17% <sup>*</sup>	15% <sup>*</sup>

		Mean	7 clusters						
			1	2	3	4	5	6	7
	Weighted		1,158	854	239	251	773	465	739
	Unweighted		914	933	222	351	687	621	718
<b>NS-SEC</b>	Never been in paid employment	4%	4%	4%	3%^	6%*	3%^	4%^	4%
<b>Working status</b>	Working	66%	72%*	64%^	63%^	54%^	73%*	48%^	68%*
	Not working	13%	8%^	16%*	14%	22%*	10%^	26%*	11%^
	Studying	8%	8%	7%^	13%*	9%*	10%*	3%^	9%*
	Retired	13%	13%^	14%*	11%^	16%*	7%^	24%*	13%
	Terminal education age	17.9	18.8*	17.2^	17.4^	16.4^	18.4*	17.7	17.3^
<b>Ethnicity</b>	White British	90%	92%*	86%^	92%*	93%*	87%^	88%^	92%*
	Asian	4%	3%^	8%*	2%^	2%^	6%*	5%*	3%^
	Black	2%	1%^	3%*	1%^	4%*	3%*	3%*	3%*
	Other	4%	4%*	4%^	6%*	2%^	4%*	4%*	2%^
<b>Partner</b>	No partner in HH	39%	29%^	44%*	51%*	42%*	45%*	34%^	40%*
	Partner in HH	61%	71%*	56%^	49%^	58%^	55%^	66%*	60%^
<b>Presence of children</b>	Children under 16 in HH	35%	37%*	37%*	34%^	41%*	37%*	27%^	31%^
	No children in HH	65%	63%^	63%^	66%*	59%^	63%^	73%*	69%*

**Table A6.8: K means model based on centred respondents – eight-cluster solution**

		Mean	8 clusters							
			1	2	3	4	5	6	7	8
Weighted			801	818	633	217	226	682	440	662
Unweighted			699	881	438	202	327	655	577	667
<b>Motivational constructs</b>	More health conscious	5.7	6.0*	5.3^	5.6	5.7	5.5^	5.7	6.0*	5.6
	Easier/more control over healthy lifestyle	5.4	5.9*	5.3	5.7*	5.3	4.9^	5.7*	4.3^	5.2
	More likely to value health	5.3	5.9*	5.7*	3.2^	5.5	5.1^	5.7*	5.7*	5.7*
	More risk-taking	4.5	3.8^	4.7*	5.0*	5.0*	4.5	4.6	4.2^	4.3
	Greater self-esteem	5.7	5.9*	5.4^	5.9*	5.3^	5.7	5.9*	5.0^	6.0*
	Greater control over own health	5.4	5.7*	5.6*	5.5	5.3	4.8^	5.6*	3.9^	5.5
	More externally focused aspirations	4.5	3.9^	4.8*	4.4	5.0*	4.5	4.9*	4.6	4.5
	More goal-setting behaviour	5.5	5.7*	5.1^	5.7*	5.0^	5.5	5.7*	5.3^	5.5
	Intend to lead a healthy lifestyle	5.8	6.1*	5.5^	5.9	5.7	5.6^	5.9*	5.7	5.5^
	Enjoy leading a healthy lifestyle	5.3	6.3*	5.8*	5.5	5.1	5.0^	5.8*	5.6*	2.9^
	More likely to get ill over next few years	2.8	2.8	2.8	2.7	2.9	3.1*	1.7^	3.9*	3.0*
	Believe a healthy lifestyle reduces chance of getting ill	5.8	6.3*	5.9	6.1*	5.9	2.5^	6.1*	5.7	5.9
	Health at risk soon if lifestyle not healthy	3.5	3.8*	3.6	3.5	3.5	3.4	2.5^	4.4*	3.5
	More short-termist	4.6	3.8^	5.5*	4.1^	4.4	5.3*	4.5	4.9*	4.6
	Learn from mistakes	5.9	6.1*	5.9	6.0	2.8^	6.1*	6.1*	6.0*	6.1*
More fatalistic about health	3.4	2.4^	4.6*	2.4^	3.4	4.3*	3.5	3.8*	3.6	

		Mean	8 clusters							
			1	2	3	4	5	6	7	8
	Weighted		801	818	633	217	226	682	440	662
	Unweighted		699	881	438	202	327	655	577	667
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	47%*	35% <sup>^</sup>	49%*	32% <sup>^</sup>	33% <sup>^</sup>	42%*	45%*	32% <sup>^</sup>
	Five or more sessions of exercise a week	34%	36%*	32% <sup>^</sup>	36%*	41%*	36%*	38%*	26% <sup>^</sup>	33% <sup>^</sup>
	Low GHQ	82%	87%*	81% <sup>^</sup>	86%*	74% <sup>^</sup>	75% <sup>^</sup>	87%*	62% <sup>^</sup>	88%*
	Ideal BMI	44%	46%*	43%	55%*	49%*	36% <sup>^</sup>	53%*	28% <sup>^</sup>	34% <sup>^</sup>
	Don't smoke nowadays	77%	84%*	70% <sup>^</sup>	83%*	70% <sup>^</sup>	68% <sup>^</sup>	81%*	77%	73% <sup>^</sup>
	Never taken a class A drug	97%	98%*	98%*	96% <sup>^</sup>	87% <sup>^</sup>	98%*	97% <sup>^</sup>	97% <sup>^</sup>	99%**
	Never taken cannabis	94%	95%*	93% <sup>^</sup>	92% <sup>^</sup>	84% <sup>^</sup>	94%	94%*	96%*	95%*
	Below recommended alcohol consumption	68%	71%*	64% <sup>^</sup>	70%*	55% <sup>^</sup>	68%	69%*	76%*	65% <sup>^</sup>
<b>IMD grouping</b>	1 – least deprived	20%	24%*	18% <sup>^</sup>	26%*	9% <sup>^</sup>	13% <sup>^</sup>	22%*	17% <sup>^</sup>	18% <sup>^</sup>
	2	20%	20%	22%*	24%*	10% <sup>^</sup>	17% <sup>^</sup>	23%*	17% <sup>^</sup>	16% <sup>^</sup>
	3	20%	24%*	19% <sup>^</sup>	18% <sup>^</sup>	22%*	16% <sup>^</sup>	21%*	16% <sup>^</sup>	21%*
	4	20%	17% <sup>^</sup>	19% <sup>^</sup>	19% <sup>^</sup>	38%*	23%*	17% <sup>^</sup>	22%*	21%*
	5	10%	9% <sup>^</sup>	11%*	8% <sup>^</sup>	12%*	11%*	6% <sup>^</sup>	15%*	13%*
	6 – most deprived	10%	6% <sup>^</sup>	12%*	5% <sup>^</sup>	11%*	19%*	11%*	12%*	11%*
<b>Age</b>	16–19	7%	3% <sup>^</sup>	8%*	13%*	12%*	5% <sup>^</sup>	9%*	2% <sup>^</sup>	6% <sup>^</sup>
	20–24	9%	3% <sup>^</sup>	10%*	17%*	20%*	9% <sup>^</sup>	11%*	2% <sup>^</sup>	9% <sup>^</sup>
	25–34	18%	20%*	17% <sup>^</sup>	23%*	16% <sup>^</sup>	16% <sup>^</sup>	24%*	12% <sup>^</sup>	13% <sup>^</sup>
	35–44	21%	21%	20% <sup>^</sup>	25%*	22%	23%*	21%	23%*	17% <sup>^</sup>
	45–54	18%	20%*	19%*	10% <sup>^</sup>	11% <sup>^</sup>	20%*	17% <sup>^</sup>	19%*	22%*
	55–64	16%	21%*	14% <sup>^</sup>	10% <sup>^</sup>	12% <sup>^</sup>	13% <sup>^</sup>	12% <sup>^</sup>	23%*	21%*
	65–74	11%	12%*	12%	4% <sup>^</sup>	9% <sup>^</sup>	14%*	8% <sup>^</sup>	19%*	14%*
<b>Gender</b>	Male	50%	46% <sup>^</sup>	53%*	50%	56%*	45% <sup>^</sup>	53%*	47% <sup>^</sup>	48% <sup>^</sup>
	Female	50%	54%*	47%	50%	44%	55%*	47%	53%*	52%*
<b>Lifestage</b>	Freedom years – under 25	12%	3% <sup>^</sup>	13%*	24%*	27%*	8% <sup>^</sup>	14%*	3% <sup>^</sup>	9% <sup>^</sup>

		Mean	8 clusters							
			1	2	3	4	5	6	7	8
Weighted			801	818	633	217	226	682	440	662
Unweighted			699	881	438	202	327	655	577	667
<b>Lifestage</b>	Freedom years – 25 and over	6%	5% <sup>^</sup>	7% <sup>*</sup>	7% <sup>*</sup>	3% <sup>^</sup>	7% <sup>*</sup>	8% <sup>*</sup>	6%	4% <sup>^</sup>
	Younger settlers	9%	10% <sup>*</sup>	5% <sup>^</sup>	17% <sup>*</sup>	5% <sup>^</sup>	4% <sup>^</sup>	11% <sup>*</sup>	6% <sup>^</sup>	9% <sup>^</sup>
	Older settlers	9%	11% <sup>*</sup>	7% <sup>^</sup>	8% <sup>^</sup>	3% <sup>^</sup>	8% <sup>^</sup>	7% <sup>^</sup>	11% <sup>*</sup>	13% <sup>*</sup>
	Younger jugglers	26%	26% <sup>*</sup>	28% <sup>*</sup>	27% <sup>*</sup>	25%	32%	25%	22% <sup>^</sup>	20% <sup>^</sup>
	Older jugglers	16%	20% <sup>*</sup>	18% <sup>*</sup>	7% <sup>^</sup>	13% <sup>^</sup>	16%	15% <sup>^</sup>	20% <sup>*</sup>	20% <sup>*</sup>
	Alone again	9%	8% <sup>^</sup>	9%	6% <sup>^</sup>	15% <sup>*</sup>	9%	11%	8% <sup>^</sup>	10% <sup>*</sup>
	Active retirement – without partner	5%	4%	6% <sup>*</sup>	2% <sup>^</sup>	1% <sup>^</sup>	7% <sup>*</sup>	3% <sup>^</sup>	8% <sup>*</sup>	6% <sup>*</sup>
	Active retirement – with partner	9%	12% <sup>*</sup>	7% <sup>^</sup>	3% <sup>^</sup>	8% <sup>^</sup>	10% <sup>*</sup>	6% <sup>^</sup>	17% <sup>*</sup>	9% <sup>*</sup>
<b>Urban/rural</b>	Metropolitan areas	34%	33% <sup>^</sup>	39% <sup>*</sup>	31% <sup>^</sup>	33% <sup>^</sup>	36% <sup>*</sup>	32% <sup>^</sup>	31% <sup>^</sup>	36% <sup>*</sup>
	Other urban	22%	22%	17% <sup>^</sup>	24% <sup>*</sup>	36% <sup>*</sup>	20% <sup>^</sup>	21% <sup>^</sup>	26% <sup>*</sup>	21% <sup>^</sup>
	Mixed urban/rural	32%	32%	34% <sup>*</sup>	33%	22% <sup>^</sup>	30% <sup>^</sup>	37% <sup>*</sup>	32%	32%
	Rural	11%	13% <sup>*</sup>	11%	13% <sup>*</sup>	9% <sup>^</sup>	13% <sup>*</sup>	10% <sup>^</sup>	11%	11% <sup>^</sup>
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	7% <sup>*</sup>	7% <sup>*</sup>	5%	8% <sup>*</sup>	4% <sup>^</sup>	5% <sup>^</sup>	5%	4% <sup>^</sup>
	Higher professional occupations	7%	10% <sup>*</sup>	4% <sup>^</sup>	10% <sup>*</sup>	4% <sup>^</sup>	3% <sup>^</sup>	10% <sup>*</sup>	8% <sup>*</sup>	5% <sup>^</sup>
	Lower managerial and professional qualifications	23%	27% <sup>*</sup>	19% <sup>^</sup>	26% <sup>*</sup>	25% <sup>*</sup>	16% <sup>^</sup>	23%	25% <sup>*</sup>	23%
	Intermediate occupations	10%	10% <sup>^</sup>	11% <sup>*</sup>	11% <sup>*</sup>	8% <sup>^</sup>	11%	9% <sup>^</sup>	9% <sup>^</sup>	12% <sup>*</sup>
	Small employers and own account workers	10%	11% <sup>*</sup>	12% <sup>*</sup>	9% <sup>^</sup>	5% <sup>^</sup>	9% <sup>^</sup>	13% <sup>*</sup>	8% <sup>^</sup>	11%
	Lower supervisory and technical occupations	10%	10% <sup>*</sup>	8% <sup>^</sup>	9% <sup>^</sup>	11% <sup>*</sup>	14% <sup>*</sup>	11% <sup>*</sup>	9% <sup>^</sup>	9% <sup>^</sup>
	Semi-routine occupations	14%	9% <sup>^</sup>	18% <sup>**</sup>	11% <sup>^</sup>	15% <sup>*</sup>	20% <sup>*</sup>	14%	14%	15% <sup>*</sup>

		Mean	8 clusters							
			1	2	3	4	5	6	7	8
Weighted			801	818	633	217	226	682	440	662
Unweighted			699	881	438	202	327	655	577	667
<b>NS-SEC</b>	Routine occupations	14%	13% <sup>^</sup>	17%	12% <sup>^</sup>	17% <sup>*</sup>	16% <sup>*</sup>	12% <sup>^</sup>	16% <sup>*</sup>	15%
	Never been in paid employment	4%	3% <sup>^</sup>	4%	5% <sup>*</sup>	3% <sup>^</sup>	6% <sup>*</sup>	2% <sup>^</sup>	4% <sup>*</sup>	4% <sup>*</sup>
<b>Working status</b>	Working	66%	70% <sup>*</sup>	64% <sup>^</sup>	75% <sup>*</sup>	63% <sup>^</sup>	57% <sup>^</sup>	72% <sup>*</sup>	48% <sup>^</sup>	65%
	Not working	13%	10% <sup>^</sup>	17% <sup>*</sup>	6% <sup>^</sup>	14% <sup>*</sup>	20% <sup>*</sup>	11% <sup>^</sup>	26% <sup>*</sup>	11% <sup>^</sup>
	Studying	8%	4% <sup>^</sup>	8% <sup>^</sup>	15% <sup>*</sup>	14% <sup>*</sup>	7% <sup>^</sup>	8%	2% <sup>^</sup>	9% <sup>*</sup>
	Retired	13%	16% <sup>*</sup>	12% <sup>^</sup>	5% <sup>^</sup>	10% <sup>^</sup>	17% <sup>*</sup>	9% <sup>^</sup>	24% <sup>*</sup>	15% <sup>*</sup>
	Terminal education age	17.9	18.6 <sup>*</sup>	17.2 <sup>^</sup>	19.0 <sup>*</sup>	17.3 <sup>^</sup>	16.4 <sup>^</sup>	18.1	17.8	17.2 <sup>^</sup>
<b>Ethnicity</b>	White British	90%	89% <sup>^</sup>	87% <sup>^</sup>	96% <sup>*</sup>	91% <sup>*</sup>	92% <sup>*</sup>	84% <sup>^</sup>	90%	92% <sup>*</sup>
	Asian	4%	5% <sup>*</sup>	7% <sup>*</sup>	1% <sup>^</sup>	2% <sup>^</sup>	2% <sup>^</sup>	7% <sup>*</sup>	4% <sup>^</sup>	3% <sup>^</sup>
	Black	2%	2% <sup>^</sup>	3% <sup>*</sup>	1% <sup>^</sup>	1% <sup>^</sup>	4% <sup>*</sup>	4% <sup>*</sup>	3% <sup>*</sup>	3% <sup>*</sup>
	Other	4%	5% <sup>*</sup>	3% <sup>^</sup>	3% <sup>^</sup>	6% <sup>*</sup>	2% <sup>^</sup>	5%	4% <sup>*</sup>	2% <sup>^</sup>
<b>Partner</b>	No partner in HH	39%	25% <sup>^</sup>	45% <sup>*</sup>	43% <sup>*</sup>	52% <sup>*</sup>	41% <sup>*</sup>	42% <sup>*</sup>	33% <sup>^</sup>	39%
	Partner in HH	61%	75% <sup>*</sup>	56% <sup>^</sup>	57% <sup>^</sup>	48% <sup>^</sup>	59% <sup>^</sup>	58% <sup>^</sup>	67% <sup>*</sup>	61%
<b>Presence of children</b>	Children under 16 in HH	35%	37% <sup>*</sup>	38% <sup>*</sup>	37% <sup>*</sup>	36% <sup>*</sup>	39% <sup>*</sup>	35%	26% <sup>^</sup>	31% <sup>^</sup>
	No children in HH	65%	63% <sup>^</sup>	62% <sup>^</sup>	63% <sup>^</sup>	64% <sup>^</sup>	61% <sup>^</sup>	65%	74% <sup>*</sup>	69% <sup>*</sup>

**Table A6.9: K means model using different software, based on centred respondents – four-cluster solution**

		Mean	4 clusters			
			1	2	3	4
Weighted			1,444	733	981	1,304
Unweighted			1,304	978	692	1,462
<b>Motivational constructs</b>	More health conscious	5.7	6.0*	5.5^	5.5^	5.4^
	Easier/more control over healthy lifestyle	5.4	5.9*	4.3^	5.7*	5.3
	More likely to value health	5.3	6.1*	5.6*	3.5^	5.8*
	More risk-taking	4.5	4.2^	4.1^	4.9*	4.7*
	Greater self-esteem	5.7	5.9*	4.8^	5.9*	5.8
	Greater control over own health	5.4	5.7*	4.1^	5.5	5.6*
	More externally focused aspirations	4.5	4.4	4.4	4.4	4.8*
	More goal-setting behaviour	5.5	5.7*	5.0^	5.6	5.4
	Intend to lead a healthy lifestyle	5.8	6.1*	5.3^	5.9	5.5^
	Enjoy leading a healthy lifestyle	5.3	5.9*	5.0^	5.4	4.8^
	More likely to get ill over next few years	2.8	2.4^	3.7*	2.8	2.7
	Believe a healthy lifestyle reduces chance of getting ill	5.8	6.3*	5.3^	6.0	5.5^
	Health at risk soon if lifestyle not healthy	3.5	3.6*	4.2*	3.5	3.0^
	More short-termist	4.6	3.7^	4.9*	4.4	5.5*
	Learn from mistakes	5.9	6.1*	5.6^	5.9	5.9
More fatalistic about health	3.4	2.8^	3.9*	2.5^	4.6*	
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	48%*	36%^	45%*	31%^
	Five or more sessions of exercise a week	34%	37%*	25%^	36%*	35%
	Low GHQ	82%	86%*	64%^	86%*	85%*
	Ideal BMI	44%	47%*	29%^	52%*	42%^
	Don't smoke nowadays	77%	86%*	71%^	80%*	69%^
	Never taken a class A drug	97%	99%*	98%*	94%^	98%*
	Never taken cannabis	94%	96%*	94%*	90%^	93%^
	Below recommended alcohol consumption	68%	69%*	72%*	69%*	64%^

		Mean	4 clusters			
			1	2	3	4
	Weighted		1,444	733	981	1,304
	Unweighted		1,304	978	692	1,462
IMD grouping	1 – least deprived	20%	24%*	14% <sup>^</sup>	23%*	17% <sup>^</sup>
	2	20%	20%	17% <sup>^</sup>	23%*	20%
	3	20%	23%*	18% <sup>^</sup>	19% <sup>^</sup>	19% <sup>^</sup>
	4	20%	18% <sup>^</sup>	26%*	21%*	18% <sup>^</sup>
	5	10%	9% <sup>^</sup>	12%*	9% <sup>^</sup>	12%*
	6 – most deprived	10%	7% <sup>^</sup>	14%*	6% <sup>^</sup>	14%*
Age	16–19	7%	3% <sup>^</sup>	2% <sup>^</sup>	14%*	9%*
	20–24	9%	5% <sup>^</sup>	4% <sup>^</sup>	16%*	12%*
	25–34	18%	19%*	12% <sup>^</sup>	21%*	18%
	35–44	21%	21%	22%	22%*	20% <sup>^</sup>
	45–54	18%	21%*	21%*	12% <sup>^</sup>	17% <sup>^</sup>
	55–64	16%	20%*	21%*	10% <sup>^</sup>	14% <sup>^</sup>
	65–74	11%	12%	18%*	6% <sup>^</sup>	11%
Gender	Male	50%	48% <sup>^</sup>	49%	51%*	52%*
	Female	50%	52%*	51%	49% <sup>^</sup>	48% <sup>^</sup>
Lifestage	Freedom years – under 25	12%	6% <sup>^</sup>	4% <sup>^</sup>	24%*	14%*
	Freedom years – 25 and over	6%	6%	6%	5% <sup>^</sup>	6%*
	Younger settlers	9%	10%*	5% <sup>^</sup>	14%*	7% <sup>^</sup>
	Older settlers	9%	11%*	11%*	7% <sup>^</sup>	7% <sup>^</sup>
	Younger jugglers	26%	25%	23% <sup>^</sup>	26%	27%*
	Older jugglers	16%	20%*	20%*	10% <sup>^</sup>	15% <sup>^</sup>
	Alone again	9%	9%	9%	8% <sup>^</sup>	10%*
	Active retirement – without partner	5%	4% <sup>^</sup>	8%*	2% <sup>^</sup>	5%
	Active retirement – with partner	9%	10%*	14%*	4% <sup>^</sup>	8% <sup>^</sup>
Urban/rural	Metropolitan areas	34%	32% <sup>^</sup>	36%*	28% <sup>^</sup>	39%*
	Other urban	22%	23%*	23%*	26%*	18% <sup>^</sup>
	Mixed urban/rural	32%	34%*	30% <sup>^</sup>	34%*	31% <sup>^</sup>
	Rural	11%	11%	11% <sup>^</sup>	12%*	12%

		Mean	4 clusters			
			1	2	3	4
Weighted			1,444	733	981	1,304
Unweighted			1,304	978	692	1,462
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	7%*	4%^	4%^	6%*
	Higher professional occupations	7%	10%*	5%^	9%*	4%^
	Lower managerial and professional qualifications	23%	25%*	24%*	28%*	18%^
	Intermediate occupations	10%	9%^	11%*	11%*	10%
	Small employers and own account workers	10%	10%	9%^	9%^	13%*
	Lower supervisory and technical occupations	10%	10%	11%*	10%	9%^
	Semi-routine occupations	14%	12%^	16%*	10%^	18%*
	Routine occupations	14%	12%^	16%*	13%^	16%*
	Never been in paid employment	4%	3%^	4%	5%*	4%*
<b>Working status</b>	Working	66%	73%*	50%^	70%*	64%^
	Not working	13%	9%^	26%*	8%^	15%*
	Studying	8%	5%^	2%^	16%*	9%*
	Retired	13%	14%*	21%*	6%^	13%^
	Terminal education age	17.9	18.5*	17.2^	18.6*	17.0^
<b>Ethnicity</b>	White British	90%	88%^	90%*	96%*	87%^
	Asian	4%	5%*	4%^	1%^	7%*
	Black	2%	3%*	2%^	1%^	3%*
	Other	4%	5%*	4%	2%^	3%^
<b>Partner</b>	No partner in HH	39%	30%^	35%^	45%*	46%*
	Partner in HH	61%	70%*	65%*	55%^	55%^
<b>Presence of children</b>	Children under 16 in HH	35%	35%	29%^	36%*	37%*
	No children in HH	65%	65%	71%*	64%^	63%^

**Table A6.10: K means model using different software, based on centred respondents – five-cluster solution**

		Mean	5 clusters				
			1	2	3	4	5
Weighted			357	1,240	558	1,398	911
Unweighted			348	1,407	765	1,273	643
<b>Motivational constructs</b>	More health conscious	5.7	5.4^	5.5^	5.6	6.0*	5.5^
	Easier/more control over healthy lifestyle	5.4	5.2^	5.3	4.1^	5.9*	5.7*
	More likely to value health	5.3	5.6*	5.8*	5.5	6.1*	3.4^
	More risk-taking	4.5	4.9*	4.5	4.0^	4.2^	4.9*
	Greater self-esteem	5.7	5.3^	5.8	4.9^	5.9*	5.9*
	Greater control over own health	5.4	5.2^	5.6*	3.8^	5.8*	5.5*
	More externally focused aspirations	4.5	4.9*	4.7*	4.3^	4.4	4.4
	More goal-setting behaviour	5.5	4.9^	5.5	5.1^	5.7*	5.6
	Intend to lead a healthy lifestyle	5.8	5.5^	5.5^	5.3^	6.2*	5.9
	Enjoy leading a healthy lifestyle	5.3	5.1^	4.7^	5.1	6.0*	5.4
	More likely to get ill over next few years	2.8	3.0*	2.7	3.9*	2.3^	2.8
	Believe a healthy lifestyle reduces chance of getting ill	5.8	5.7	5.5^	5.2^	6.2*	6.0*
	Health at risk soon if lifestyle not healthy	3.5	3.6	3.1^	4.2*	3.6	3.4
	More short-termist	4.6	4.6	5.4*	4.8*	3.9^	4.4
	Learn from mistakes	5.9	3.4^	6.1*	6.0	6.2*	6.0
	More fatalistic about health	3.4	3.4	4.8*	3.7	2.7^	2.6^
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	35% <sup>^</sup>	31% <sup>^</sup>	38% <sup>^</sup>	48% <sup>*</sup>	46% <sup>*</sup>
	Five or more sessions of exercise a week	34%	37% <sup>*</sup>	35%	26% <sup>^</sup>	36% <sup>*</sup>	35%
	Low GHQ	82%	72% <sup>^</sup>	85% <sup>*</sup>	62% <sup>^</sup>	87% <sup>*</sup>	87% <sup>*</sup>
	Ideal BMI	44%	46% <sup>*</sup>	41% <sup>^</sup>	28% <sup>^</sup>	47% <sup>*</sup>	52% <sup>*</sup>
	Don't smoke nowadays	77%	68% <sup>^</sup>	70% <sup>^</sup>	72% <sup>^</sup>	87% <sup>*</sup>	80% <sup>*</sup>
	Never taken a class A drug	97%	89% <sup>^</sup>	98% <sup>*</sup>	99% <sup>*</sup>	99% <sup>*</sup>	96% <sup>^</sup>
	Never taken cannabis	94%	85% <sup>^</sup>	95% <sup>*</sup>	95% <sup>*</sup>	97% <sup>*</sup>	90% <sup>^</sup>
	Below recommended alcohol consumption	68%	55% <sup>^</sup>	67% <sup>^</sup>	72% <sup>*</sup>	70% <sup>*</sup>	69% <sup>*</sup>

		Mean	5 clusters				
			1	2	3	4	5
	<b>Weighted</b>		357	1,240	558	1,398	911
	<b>Unweighted</b>		348	1,407	765	1,273	643
<b>IMD grouping</b>	1 – least deprived	20%	14% <sup>^</sup>	17% <sup>^</sup>	15% <sup>^</sup>	24% <sup>*</sup>	25% <sup>*</sup>
	2	20%	15% <sup>^</sup>	20%	15% <sup>^</sup>	21% <sup>*</sup>	24% <sup>*</sup>
	3	20%	21% <sup>*</sup>	19% <sup>^</sup>	17% <sup>^</sup>	23% <sup>*</sup>	20%
	4	20%	27% <sup>*</sup>	19% <sup>^</sup>	26% <sup>*</sup>	18% <sup>^</sup>	19% <sup>^</sup>
	5	10%	13% <sup>*</sup>	12% <sup>*</sup>	13% <sup>*</sup>	8% <sup>^</sup>	8% <sup>^</sup>
	6 – most deprived	10%	10%	14% <sup>*</sup>	14% <sup>*</sup>	7% <sup>^</sup>	5% <sup>^</sup>
<b>Age</b>	16–19	7%	9% <sup>*</sup>	8% <sup>*</sup>	2% <sup>^</sup>	3% <sup>^</sup>	14% <sup>*</sup>
	20–24	9%	15% <sup>*</sup>	11% <sup>*</sup>	4% <sup>^</sup>	5% <sup>^</sup>	15% <sup>*</sup>
	25–34	18%	19% <sup>*</sup>	18%	10% <sup>^</sup>	19% <sup>*</sup>	22% <sup>*</sup>
	35–44	21%	19% <sup>^</sup>	19% <sup>^</sup>	23% <sup>*</sup>	22% <sup>*</sup>	22% <sup>*</sup>
	45–54	18%	15% <sup>^</sup>	19% <sup>*</sup>	20% <sup>*</sup>	21% <sup>*</sup>	11% <sup>^</sup>
	55–64	16%	13% <sup>^</sup>	14% <sup>^</sup>	22% <sup>*</sup>	19% <sup>*</sup>	11% <sup>^</sup>
	65–74	11%	11% <sup>^</sup>	12% <sup>*</sup>	18% <sup>*</sup>	11%	6% <sup>^</sup>
<b>Gender</b>	Male	50%	52% <sup>*</sup>	51% <sup>*</sup>	49%	48% <sup>^</sup>	50%
	Female	50%	48% <sup>^</sup>	49% <sup>^</sup>	51%	52% <sup>*</sup>	50%
<b>Lifestage</b>	Freedom years – under 25	12%	19% <sup>*</sup>	12% <sup>*</sup>	4% <sup>^</sup>	6% <sup>^</sup>	23% <sup>*</sup>
	Freedom years – 25 and over	6%	2% <sup>^</sup>	7% <sup>*</sup>	6% <sup>*</sup>	6%	5% <sup>^</sup>
	Younger settlers	9%	6% <sup>^</sup>	7% <sup>^</sup>	6% <sup>^</sup>	10% <sup>*</sup>	14% <sup>*</sup>
	Older settlers	9%	4% <sup>^</sup>	8% <sup>^</sup>	12% <sup>*</sup>	11% <sup>*</sup>	8% <sup>^</sup>
	Younger jugglers	26%	24% <sup>^</sup>	27% <sup>*</sup>	23% <sup>^</sup>	25%	26%
	Older jugglers	16%	16% <sup>^</sup>	17% <sup>*</sup>	19% <sup>*</sup>	19% <sup>*</sup>	9% <sup>^</sup>
	Alone again	9%	15% <sup>*</sup>	9%	9% <sup>^</sup>	9%	7% <sup>^</sup>
	Active retirement – without partner	5%	5% <sup>*</sup>	5% <sup>*</sup>	8% <sup>*</sup>	4% <sup>^</sup>	2% <sup>^</sup>
	Active retirement – with partner	9%	8% <sup>^</sup>	8% <sup>^</sup>	15% <sup>*</sup>	10% <sup>*</sup>	4% <sup>^</sup>
<b>Urban/rural</b>	Metropolitan areas	34%	33% <sup>^</sup>	39% <sup>*</sup>	35% <sup>*</sup>	33%	29% <sup>^</sup>
	Other urban	22%	33% <sup>*</sup>	18% <sup>^</sup>	23% <sup>*</sup>	21%	24% <sup>*</sup>
	Mixed urban/rural	32%	26% <sup>^</sup>	32% <sup>^</sup>	30% <sup>^</sup>	34% <sup>*</sup>	35% <sup>*</sup>
	Rural	11%	8% <sup>^</sup>	12% <sup>*</sup>	11%	11%	12% <sup>*</sup>

		Mean	5 clusters				
			1	2	3	4	5
<b>Weighted</b>			357	1,240	558	1,398	911
<b>Unweighted</b>			348	1,407	765	1,273	643
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	7%*	7%*	4%^	6%*	4%^
	Higher professional occupations	7%	5%^	3%^	6%^	11%*	9%*
	Lower managerial and professional qualifications	23%	23%	19%^	24%	25%*	27%*
	Intermediate occupations	10%	10%^	11%*	9%^	9%^	12%*
	Small employers and own account workers	10%	7%^	12%*	8%^	11%*	9%^
	Lower supervisory and technical occupations	10%	9%^	9%^	11%*	10%*	10%
	Semi-routine occupations	14%	14%	18%*	16%*	12%^	9%^
	Routine occupations	14%	18%*	15%*	17%*	12%^	12%^
	Never been in paid employment	4%	4%^	4%*	5%*	3%^	5%*
<b>Working status</b>	Working	66%	63%^	64%^	48%^	73%*	71%*
	Not working	13%	14%*	16%*	28%*	9%^	8%^
	Studying	8%	10%	7%^	3%^	5%^	15%*
	Retired	13%	13%	13%	22%*	14%*	7%^
Terminal education age		17.9	17.8	16.9^	17.4^	18.5*	18.5*
<b>Ethnicity</b>	White British	90%	93%*	87%^	91%*	87%^	96%*
	Asian	4%	2%^	7%*	4%^	5%*	1%^
	Black	2%	1%^	3%*	2%	3%*	1%^
	Other	4%	4%	4%	3%^	5%*	2%^
<b>Partner</b>	No partner in HH	39%	50%*	43%*	35%^	30%^	43%*
	Partner in HH	61%	51%^	57%^	65%*	70%*	57%^
<b>Presence of children</b>	Children under 16 in HH	35%	34%	37%*	28%^	36%	36%*
	No children in HH	65%	66%	63%^	72%*	64%	64%^

**Table A6.11: K means model using different software, based on centred respondents – six-cluster solution**

		Mean	6 clusters					
			1	2	3	4	5	6
Weighted			439	801	1,059	1,032	808	324
Unweighted			621	564	1,174	950	805	322
<b>Motivational constructs</b>	More health conscious	5.7	5.6	5.6	5.3^	5.9*	6.0*	5.4^
	Easier/more control over healthy lifestyle	5.4	4.0^	5.7*	5.1^	5.8*	5.9*	5.1^
	More likely to value health	5.3	5.5	3.3^	5.6*	6.0*	6.0*	5.6*
	More risk-taking	4.5	3.9^	5.0*	4.5	3.9^	4.8*	4.9*
	Greater self-esteem	5.7	4.7^	5.9*	5.8	5.9*	5.9*	5.3^
	Greater control over own health	5.4	3.5^	5.5	5.5	5.6*	5.9*	5.2^
	More externally focused aspirations	4.5	4.4	4.5	4.6	4.0^	5.2*	4.9*
	More goal-setting behaviour	5.5	5.0^	5.6	5.4	5.6*	5.8*	4.9
	Intend to lead a healthy lifestyle	5.8	5.4^	5.9	5.3^	6.0*	6.2*	5.5^
	Enjoy leading a healthy lifestyle	5.3	5.1^	5.4	4.4^	5.7*	6.1*	5.1
	More likely to get ill over next few years	2.8	3.9*	2.8	3.0*	2.9	1.6^	3.0*
	Believe a healthy lifestyle reduces chance of getting ill	5.8	5.0^	6.0*	5.4^	6.2*	6.2*	5.7
	Health at risk soon if lifestyle not healthy	3.5	4.2*	3.4	3.2^	3.9*	3.0^	3.7*
	More short-termist	4.6	4.9*	4.3^	5.4*	3.8^	4.6	4.7
	Learn from mistakes	5.9	6.0	5.9	6.1*	6.2*	6.2*	3.3^
	More fatalistic about health	3.4	3.8*	2.5^	4.7*	2.6^	3.6	3.6
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	37%^	46%*	30%^	47%*	45%*	35%^
	Five or more sessions of exercise a week	34%	25%^	35%	34%	34%	40%*	36%*
	Low GHQ	82%	58%^	87%*	85%*	87%*	86%*	70%^
	Ideal BMI	44%	30%^	54%*	39%^	42%^	50%*	45%*
	Don't smoke nowadays	77%	72%^	81%*	68%^	84%*	84%*	68%^
	Never taken a class A drug	97%	99%*	97%^	98%*	99%*	98%*	87%^

		Mean	6 clusters					
			1	2	3	4	5	6
	Weighted		439	801	1,059	1,032	808	324
	Unweighted		621	564	1,174	950	805	322
Health behaviours	Never taken cannabis	94%	96%*	90%^	93%^	97%*	96%*	83%^
	Below recommended alcohol consumption	68%	74%*	68%	67%^	71%*	67%^	54%^
IMD grouping	1 – least deprived	20%	12%^	25%*	17%^	23%*	22%*	15%^
	2	20%	15%^	24%*	20%	21%*	20%	15%^
	3	20%	18%^	21%*	18%^	23%*	20%	21%
	4	20%	28%*	18%^	19%^	17%^	22%*	27%*
	5	10%	13%*	8%^	14%*	9%^	6%^	12%*
	6 – most deprived	10%	15%*	5%^	14%*	7%^	11%	11%
Age	16–19	7%	2%^	15%*	8%	2%^	7%	7%
	20–24	9%	4%^	15%*	9%	3%^	11%*	16%*
	25–34	18%	9%^	22%*	19%	17%^	20%*	18%
	35–44	21%	22%*	23%*	20%^	21%	20%	19%^
	45–54	18%	19%*	9%^	19%*	22%*	19%*	14%^
	55–64	16%	24%*	11%^	14%^	22%*	13%^	15%^
	65–74	11%	20%*	5%^	11%	14%*	10%^	11%^
Gender	Male	50%	47%^	49%^	51%*	45%^	56%*	53%*
	Female	50%	53%*	52%*	49%^	55%*	44%^	47%^
Lifestage	Freedom years – under 25	12%	3%^	25%*	10%^	4%^	14%*	18%*
	Freedom years – 25 and over	6%	6%*	5%^	7%*	5%^	7%*	3%^
	Younger settlers	9%	4%^	16%*	6%^	9%	10%*	7%^
	Older settlers	9%	11%*	8%^	8%^	12%*	8%^	5%^
	Younger jugglers	26%	23%^	26%	29%*	24%^	24%^	23%^
	Older jugglers	16%	19%*	8%^	17%*	21%*	17%*	16%
	Alone again	9%	8%^	8%^	9%	8%^	11%*	16%*
	Active retirement – without partner	5%	9%*	2%^	5%*	5%	4%^	5%*
	Active retirement – with partner	9%	16%*	4%^	8%^	12%*	6%^	9%

		Mean	6 clusters					
			1	2	3	4	5	6
<b>Weighted</b>			439	801	1,059	1,032	808	324
<b>Unweighted</b>			621	564	1,174	950	805	322
<b>Urban/rural</b>	Metropolitan areas	34%	34%	29% <sup>^</sup>	38% <sup>*</sup>	33% <sup>^</sup>	35%	34%
	Other urban	22%	24% <sup>*</sup>	24% <sup>*</sup>	18% <sup>^</sup>	23% <sup>*</sup>	20% <sup>^</sup>	32% <sup>*</sup>
	Mixed urban/rural	32%	30% <sup>^</sup>	33%	33%	33%	35% <sup>*</sup>	26% <sup>^</sup>
	Rural	11%	12%	14% <sup>*</sup>	11%	11%	10% <sup>^</sup>	9% <sup>^</sup>
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	3% <sup>^</sup>	5% <sup>^</sup>	6% <sup>*</sup>	6%	6%	7% <sup>*</sup>
	Higher professional occupations	7%	6% <sup>^</sup>	9% <sup>*</sup>	3% <sup>^</sup>	9% <sup>*</sup>	9% <sup>*</sup>	5% <sup>^</sup>
	Lower managerial and professional qualifications	23%	22% <sup>^</sup>	26% <sup>*</sup>	19% <sup>^</sup>	27% <sup>*</sup>	22% <sup>^</sup>	23%
	Intermediate occupations	10%	9% <sup>^</sup>	11% <sup>*</sup>	12% <sup>*</sup>	11%	7% <sup>^</sup>	10%
	Small employers and own account workers	10%	9% <sup>^</sup>	10% <sup>^</sup>	12% <sup>*</sup>	10%	11% <sup>*</sup>	8% <sup>^</sup>
	Lower supervisory and technical occupations	10%	10% <sup>*</sup>	10%	9% <sup>^</sup>	9%	11% <sup>*</sup>	9% <sup>^</sup>
	Semi-routine occupations	14%	16% <sup>*</sup>	10% <sup>^</sup>	17% <sup>*</sup>	12% <sup>^</sup>	16% <sup>*</sup>	15% <sup>*</sup>
	Routine occupations	14%	19% <sup>*</sup>	12% <sup>^</sup>	16% <sup>*</sup>	12% <sup>^</sup>	13% <sup>^</sup>	17% <sup>*</sup>
	Never been in paid employment	4%	4% <sup>*</sup>	4% <sup>*</sup>	4% <sup>*</sup>	3% <sup>^</sup>	3% <sup>^</sup>	3% <sup>^</sup>
	<b>Working status</b>	Working	66%	43% <sup>^</sup>	70% <sup>*</sup>	65% <sup>^</sup>	70% <sup>*</sup>	72% <sup>*</sup>
Not working		13%	31% <sup>*</sup>	7% <sup>^</sup>	15% <sup>*</sup>	10% <sup>^</sup>	11% <sup>^</sup>	15% <sup>*</sup>
Studying		8%	2% <sup>^</sup>	17% <sup>*</sup>	7% <sup>^</sup>	4% <sup>^</sup>	8% <sup>^</sup>	8% <sup>*</sup>
Retired		13%	25% <sup>*</sup>	6% <sup>^</sup>	13%	16% <sup>*</sup>	10% <sup>^</sup>	13%
Terminal education age		17.9	17.0 <sup>^</sup>	18.8 <sup>*</sup>	17.0 <sup>^</sup>	18.3 <sup>*</sup>	18.1	17.7
<b>Ethnicity</b>	White British	90%	91% <sup>*</sup>	96% <sup>*</sup>	89% <sup>^</sup>	90% <sup>*</sup>	83% <sup>^</sup>	92% <sup>*</sup>
	Asian	4%	3% <sup>^</sup>	1% <sup>^</sup>	5% <sup>*</sup>	4% <sup>^</sup>	8% <sup>*</sup>	2% <sup>^</sup>
	Black	2%	2% <sup>^</sup>	1% <sup>^</sup>	3% <sup>*</sup>	2% <sup>^</sup>	5% <sup>*</sup>	1% <sup>^</sup>
	Other	4%	3% <sup>^</sup>	2% <sup>^</sup>	3% <sup>^</sup>	4% <sup>*</sup>	5% <sup>*</sup>	5% <sup>*</sup>
<b>Partner</b>	No partner in HH	39%	34% <sup>^</sup>	44% <sup>*</sup>	42% <sup>*</sup>	27% <sup>^</sup>	41% <sup>*</sup>	49% <sup>*</sup>
	Partner in HH	61%	66% <sup>*</sup>	56% <sup>^</sup>	58% <sup>^</sup>	73% <sup>*</sup>	59% <sup>^</sup>	51% <sup>^</sup>
<b>Presence of children</b>	Children under 16 in HH	35%	29% <sup>^</sup>	36%	39% <sup>*</sup>	33% <sup>^</sup>	37% <sup>*</sup>	31% <sup>^</sup>
	No children in HH	65%	71% <sup>*</sup>	64%	61% <sup>^</sup>	67% <sup>*</sup>	63% <sup>^</sup>	69% <sup>*</sup>

**Table A6.12: K means model using different software, based on centred respondents – seven-cluster solution**

		Mean	7 clusters						
			1	2	3	4	5	6	7
Weighted			244	971	792	412	277	980	787
Unweighted			343	1,032	794	556	272	885	554
<b>Motivational constructs</b>	More health conscious	5.7	5.5^	5.3^	6.0*	5.6	5.4^	5.9*	5.6
	Easier/more control over healthy lifestyle	5.4	5.2^	5.1^	5.9*	3.9^	5.2^	5.8*	5.7*
	More likely to value health	5.3	5.2	5.7*	6.0*	5.6*	5.6*	6.0*	3.3^
	More risk-taking	4.5	4.5	4.5	4.7*	4.0^	4.9*	3.9^	5.0*
	Greater self-esteem	5.7	5.7	5.8	5.9*	4.5^	5.3^	5.9*	5.9*
	Greater control over own health	5.4	5.0^	5.5	5.9*	3.7^	5.2^	5.6*	5.5
	More externally focused aspirations	4.5	4.5	4.6	5.2*	4.5	4.9*	3.9^	4.5
	More goal-setting behaviour	5.5	5.4	5.4	5.8*	4.9^	5.0^	5.6*	5.6*
	Intend to lead a healthy lifestyle	5.8	5.7	5.2^	6.2*	5.3^	5.6^	6.0*	5.9*
	Enjoy leading a healthy lifestyle	5.3	5.1	4.3^	6.0*	5.2	5.1	5.8*	5.4
	More likely to get ill over next few years	2.8	3.0*	3.0*	1.7^	3.9*	2.9*	2.8	2.8
	Believe a healthy lifestyle reduces chance of getting ill	5.8	2.7^	5.8	6.3*	5.4^	5.7	6.2*	6.1*
	Health at risk soon if lifestyle not healthy	3.5	3.4	3.2^	2.9^	4.2*	3.7*	3.9*	3.4
	More short-termist	4.6	5.4*	5.4*	4.5	4.9*	4.5	3.8^	4.3^
	Learn from mistakes	5.9	6.2*	6.0*	6.2*	5.9	3.1^	6.1*	5.9
	More fatalistic about health	3.4	4.3*	4.6*	3.6	3.8*	3.5	2.6^	2.6^
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	31% <sup>^</sup>	32% <sup>^</sup>	45% <sup>*</sup>	38% <sup>^</sup>	36% <sup>^</sup>	47% <sup>*</sup>	46% <sup>*</sup>
	Five or more sessions of exercise a week	34%	34%	34%	37% <sup>*</sup>	26% <sup>^</sup>	37% <sup>*</sup>	34%	36% <sup>*</sup>
	Low GHQ	82%	78% <sup>^</sup>	86% <sup>*</sup>	86% <sup>*</sup>	56% <sup>^</sup>	70% <sup>^</sup>	86% <sup>*</sup>	87% <sup>*</sup>
	Ideal BMI	44%	36% <sup>^</sup>	39% <sup>^</sup>	51% <sup>*</sup>	29% <sup>^</sup>	45% <sup>*</sup>	42% <sup>^</sup>	55% <sup>*</sup>
	Don't smoke nowadays	77%	68% <sup>^</sup>	67% <sup>^</sup>	85% <sup>*</sup>	72% <sup>^</sup>	70% <sup>^</sup>	84% <sup>*</sup>	82% <sup>*</sup>

		Mean	7 clusters						
			1	2	3	4	5	6	7
	<b>Weighted</b>		244	971	792	412	277	980	787
	<b>Unweighted</b>		343	1,032	794	556	272	885	554
<b>Health behaviours</b>	Never taken a class A drug	97%	98%*	98%*	98%*	99%*	87% <sup>^</sup>	99%*	97% <sup>^</sup>
	Never taken cannabis	94%	94%*	92% <sup>^</sup>	96%*	96%*	83% <sup>^</sup>	97%*	91% <sup>^</sup>
	Below recommended alcohol consumption	68%	69%*	65% <sup>^</sup>	68%	75%*	56% <sup>^</sup>	71%*	68%
<b>IMD grouping</b>	1 – least deprived	20%	14% <sup>^</sup>	18% <sup>^</sup>	22%*	14% <sup>^</sup>	12% <sup>^</sup>	23%*	25%*
	2	20%	18% <sup>^</sup>	20%	21%	14% <sup>^</sup>	17% <sup>^</sup>	21%*	23%*
	3	20%	15% <sup>^</sup>	18% <sup>^</sup>	21%*	17% <sup>^</sup>	19% <sup>^</sup>	23%*	21%*
	4	20%	24%*	18% <sup>^</sup>	20%	28%*	30%*	17% <sup>^</sup>	18% <sup>^</sup>
	5	10%	10%*	13%*	6% <sup>^</sup>	13%*	13%*	9% <sup>^</sup>	8% <sup>^</sup>
	6 – most deprived	10%	18%*	13%*	11%*	14%*	11%*	6% <sup>^</sup>	5% <sup>^</sup>
<b>Age</b>	16–19	7%	5% <sup>^</sup>	8%*	7% <sup>^</sup>	2% <sup>^</sup>	8%*	2% <sup>^</sup>	15%*
	20–24	9%	10%*	9% <sup>^</sup>	11%*	4% <sup>^</sup>	16%*	3% <sup>^</sup>	15%*
	25–34	18%	16% <sup>^</sup>	18%	21%*	9% <sup>^</sup>	18%	17% <sup>^</sup>	23%*
	35–44	21%	21%	19% <sup>^</sup>	21%	25%*	20% <sup>^</sup>	20% <sup>^</sup>	23%*
	45–54	18%	21%*	18%*	18%	20%*	15% <sup>^</sup>	23%*	9% <sup>^</sup>
	55–64	16%	16%	16%	13% <sup>^</sup>	23%*	14% <sup>^</sup>	21%*	11% <sup>^</sup>
	65–74	11%	12%*	12%*	10% <sup>^</sup>	17%*	10% <sup>^</sup>	14%*	5% <sup>^</sup>
<b>Gender</b>	Male	50%	51%*	52%*	55%*	48% <sup>^</sup>	51%*	45% <sup>^</sup>	48% <sup>^</sup>
	Female	50%	49% <sup>^</sup>	48% <sup>^</sup>	46% <sup>^</sup>	52%*	49% <sup>^</sup>	55%*	52%*
<b>Lifestage</b>	Freedom years – under 25	12%	8% <sup>^</sup>	11% <sup>^</sup>	14%*	4% <sup>^</sup>	19%*	4% <sup>^</sup>	24%*
	Freedom years – 25 and over	6%	7%*	6%	7%*	7%*	3% <sup>^</sup>	5% <sup>^</sup>	5% <sup>^</sup>
	Younger settlers	9%	3% <sup>^</sup>	6% <sup>^</sup>	11%*	5% <sup>^</sup>	6% <sup>^</sup>	9% <sup>^</sup>	16%*
	Older settlers	9%	8% <sup>^</sup>	9%	8% <sup>^</sup>	11%*	4% <sup>^</sup>	11%*	8% <sup>^</sup>
	Younger jugglers	26%	30%*	28%*	24% <sup>^</sup>	24% <sup>^</sup>	23% <sup>^</sup>	24% <sup>^</sup>	26%
	Older jugglers	16%	18%*	17%*	15% <sup>^</sup>	21%*	16% <sup>^</sup>	22%*	7% <sup>^</sup>
	Alone again	9%	11%*	9%	10%*	7% <sup>^</sup>	17%*	8% <sup>^</sup>	7% <sup>^</sup>
	Active retirement – without partner	5%	6%*	5%*	4% <sup>^</sup>	8%*	4% <sup>^</sup>	5%*	2% <sup>^</sup>
	Active retirement – with partner	9%	9%	9%	6% <sup>^</sup>	13%*	9%	13%*	4% <sup>^</sup>

		Mean	7 clusters						
			1	2	3	4	5	6	7
	<b>Weighted</b>		244	971	792	412	277	980	787
	<b>Unweighted</b>		343	1,032	794	556	272	885	554
<b>Urban/rural</b>	Metropolitan areas	34%	37%*	39%*	35%	37%*	31% <sup>^</sup>	33% <sup>^</sup>	28% <sup>^</sup>
	Other urban	22%	20% <sup>^</sup>	19% <sup>^</sup>	21% <sup>^</sup>	23%	33%*	23%	24%*
	Mixed urban/rural	32%	28% <sup>^</sup>	32%	35%*	31% <sup>^</sup>	28% <sup>^</sup>	33%*	34%*
	Rural	11%	16%*	11%	9% <sup>^</sup>	10% <sup>^</sup>	9% <sup>^</sup>	11%	14%*
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	3% <sup>^</sup>	7%*	5% <sup>^</sup>	5% <sup>^</sup>	7%*	6%*	5%
	Higher professional occupations	7%	3% <sup>^</sup>	3% <sup>^</sup>	10%*	6% <sup>^</sup>	5% <sup>^</sup>	10%*	9%*
	Lower managerial and professional qualifications	23%	15% <sup>^</sup>	19% <sup>^</sup>	22% <sup>^</sup>	24%	24%*	28%*	26%*
	Intermediate occupations	10%	13%*	12%*	7% <sup>^</sup>	10% <sup>^</sup>	8% <sup>^</sup>	10%	11%*
	Small employers and own account workers	10%	9% <sup>^</sup>	12%*	12%*	8% <sup>^</sup>	8% <sup>^</sup>	10%	10%
	Lower supervisory and technical occupations	10%	12%*	10%	11%*	9% <sup>^</sup>	9% <sup>^</sup>	9% <sup>^</sup>	10%
	Semi-routine occupations	14%	18%*	18%*	15%*	17%*	14%	11% <sup>^</sup>	9% <sup>^</sup>
	Routine occupations	14%	20%*	16%*	12% <sup>^</sup>	16%*	18%*	12% <sup>^</sup>	12% <sup>^</sup>
	Never been in paid employment	4%	5%*	4% <sup>^</sup>	4%	5%*	3% <sup>^</sup>	3% <sup>^</sup>	4%*
	<b>Working status</b>	Working	66%	57% <sup>^</sup>	64% <sup>^</sup>	73%*	46% <sup>^</sup>	64% <sup>^</sup>	69%*
Not working		13%	22%*	15%*	11% <sup>^</sup>	30%*	15%*	10% <sup>^</sup>	7% <sup>^</sup>
Studying		8%	6% <sup>^</sup>	8%	7% <sup>^</sup>	2% <sup>^</sup>	9%*	4% <sup>^</sup>	16%*
Retired		13%	15%*	14%*	10% <sup>^</sup>	21%*	13% <sup>^</sup>	17%*	6% <sup>^</sup>
	Terminal education age	17.9	16.3 <sup>^</sup>	17.0 <sup>^</sup>	18.1*	17.2 <sup>^</sup>	17.7	18.5*	18.8*
<b>Ethnicity</b>	White British	90%	92%*	89%	82% <sup>^</sup>	90%	92%*	90%*	96%*
	Asian	4%	2% <sup>^</sup>	5%*	8%*	4% <sup>^</sup>	2% <sup>^</sup>	4% <sup>^</sup>	2% <sup>^</sup>
	Black	2%	4%*	2% <sup>^</sup>	5%*	3%*	1% <sup>^</sup>	2% <sup>^</sup>	0% <sup>^</sup>
	Other	4%	2% <sup>^</sup>	3% <sup>^</sup>	5%*	4% <sup>^</sup>	5%*	4%*	2% <sup>^</sup>

		Mean	7 clusters						
			1	2	3	4	5	6	7
<b>Weighted</b>			244	971	792	412	277	980	787
<b>Unweighted</b>			343	1,032	794	556	272	885	554
<b>Partner</b>	No partner in HH	39%	42%*	42%*	41%*	34% <sup>^</sup>	51%*	27% <sup>^</sup>	44%*
	Partner in HH	61%	58% <sup>^</sup>	58% <sup>^</sup>	59% <sup>^</sup>	66%*	49% <sup>^</sup>	73%*	56% <sup>^</sup>
<b>Presence of children</b>	Children under 16 in HH	35%	40%*	37%*	35%	29% <sup>^</sup>	33% <sup>^</sup>	34%	36%
	No children in HH	65%	60% <sup>^</sup>	63% <sup>^</sup>	65%	72%*	67%*	66%	65%

**Table A6.13: K means model run using basic SPSS software, based on centred respondents – four-cluster solution**

		Mean	4 clusters			
			1	2	3	4
Weighted			1,299	989	687	1,488
Unweighted			1,436	695	930	1,375
<b>Motivational constructs</b>	More health conscious	5.7	5.3 <sup>^</sup>	5.6	5.6	6.1 <sup>*</sup>
	Easier/more control over healthy lifestyle	5.4	5.3	5.7 <sup>*</sup>	4.2 <sup>^</sup>	5.9 <sup>*</sup>
	More likely to value health	5.3	5.7 <sup>*</sup>	3.5 <sup>^</sup>	5.6 <sup>*</sup>	6.1 <sup>*</sup>
	More risk-taking	4.5	4.7 <sup>*</sup>	4.9 <sup>*</sup>	4.0 <sup>^</sup>	4.1 <sup>^</sup>
	Greater self-esteem	5.7	5.8	5.9 <sup>*</sup>	4.8 <sup>^</sup>	5.9 <sup>*</sup>
	Greater control over own health	5.4	5.5 <sup>*</sup>	5.5	4.1 <sup>^</sup>	5.8 <sup>*</sup>
	More externally focused aspirations	4.5	4.7 <sup>*</sup>	4.5	4.4	4.5
	More goal-setting behaviour	5.5	5.4	5.6 <sup>*</sup>	4.9 <sup>^</sup>	5.7 <sup>*</sup>
	Intend to lead a healthy lifestyle	5.8	5.4 <sup>^</sup>	5.9 <sup>*</sup>	5.4 <sup>^</sup>	6.2 <sup>*</sup>
	Enjoy leading a healthy lifestyle	5.3	4.6 <sup>^</sup>	5.5	5.1 <sup>^</sup>	5.9
	More likely to get ill over next few years	2.8	2.8	2.8	3.8 <sup>*</sup>	2.3 <sup>^</sup>
	Believe a healthy lifestyle reduces chance of getting ill	5.8	5.5 <sup>^</sup>	6.0 <sup>*</sup>	5.3 <sup>^</sup>	6.2 <sup>*</sup>
	Health at risk soon if lifestyle not healthy	3.5	3.0 <sup>^</sup>	3.4	4.2 <sup>*</sup>	3.6
	More short-termist	4.6	5.5 <sup>*</sup>	4.4	4.8 <sup>*</sup>	3.8 <sup>^</sup>
	Learn from mistakes	5.9	5.9	5.9	5.5 <sup>^</sup>	6.0 <sup>*</sup>
More fatalistic about health	3.4	4.5 <sup>*</sup>	2.5 <sup>^</sup>	3.9 <sup>*</sup>	2.9 <sup>^</sup>	
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	30% <sup>^</sup>	46% <sup>*</sup>	37% <sup>^</sup>	48% <sup>*</sup>
	Five or more sessions of exercise a week	34%	35%	37% <sup>*</sup>	25% <sup>^</sup>	37% <sup>*</sup>
	Low GHQ	82%	84% <sup>*</sup>	87% <sup>*</sup>	62% <sup>^</sup>	86% <sup>*</sup>
	Ideal BMI	44%	41% <sup>^</sup>	53% <sup>*</sup>	29% <sup>^</sup>	47% <sup>*</sup>
	Don't smoke nowadays	77%	68% <sup>^</sup>	80% <sup>*</sup>	72% <sup>^</sup>	87% <sup>*</sup>
	Never taken a class A drug	97%	97% <sup>^</sup>	94% <sup>^</sup>	98% <sup>*</sup>	99% <sup>*</sup>
	Never taken cannabis	94%	92% <sup>^</sup>	91% <sup>^</sup>	94%	96% <sup>*</sup>
	Below recommended alcohol consumption	68%	65% <sup>^</sup>	68%	72% <sup>*</sup>	69% <sup>*</sup>

		Mean	4 clusters			
			1	2	3	4
	Weighted		1,299	989	687	1,488
	Unweighted		1,436	695	930	1,375
<b>IMD grouping</b>	1 – least deprived	20%	18% <sup>^</sup>	23% <sup>*</sup>	13% <sup>^</sup>	23% <sup>*</sup>
	2	20%	20%	23% <sup>*</sup>	15% <sup>^</sup>	20%
	3	20%	19% <sup>^</sup>	19% <sup>^</sup>	19% <sup>^</sup>	22% <sup>*</sup>
	4	20%	18% <sup>^</sup>	21% <sup>*</sup>	27% <sup>*</sup>	18% <sup>^</sup>
	5	10%	12% <sup>*</sup>	9% <sup>^</sup>	12% <sup>*</sup>	9% <sup>^</sup>
	6 – most deprived	10%	14% <sup>*</sup>	5% <sup>^</sup>	14% <sup>*</sup>	8% <sup>^</sup>
	Actual age of respondent	42.7	41	36 <sup>^</sup>	49 <sup>*</sup>	45 <sup>*</sup>
<b>Age</b>	16–19	7%	9% <sup>*</sup>	13% <sup>*</sup>	2% <sup>^</sup>	3% <sup>^</sup>
	20–24	9%	12% <sup>*</sup>	16% <sup>*</sup>	4% <sup>^</sup>	5% <sup>^</sup>
	25–34	18%	19%	22% <sup>*</sup>	11% <sup>^</sup>	19%
	35–44	21%	19% <sup>^</sup>	22% <sup>*</sup>	22% <sup>*</sup>	22% <sup>*</sup>
	45–54	18%	18%	11% <sup>^</sup>	20% <sup>*</sup>	20% <sup>*</sup>
	55–64	16%	14% <sup>^</sup>	11% <sup>^</sup>	22% <sup>*</sup>	19% <sup>*</sup>
	65–74	11%	11% <sup>^</sup>	6% <sup>^</sup>	19% <sup>*</sup>	12% <sup>*</sup>
<b>Gender</b>	Male	50%	53% <sup>*</sup>	51%	48% <sup>^</sup>	47% <sup>^</sup>
	Female	50%	47% <sup>^</sup>	49%	52% <sup>*</sup>	53% <sup>*</sup>
<b>Lifestage</b>	Freedom years – under 25	12%	14% <sup>*</sup>	24% <sup>*</sup>	4% <sup>^</sup>	6% <sup>^</sup>
	Freedom years – 25 and over	6%	7% <sup>*</sup>	6% <sup>^</sup>	5% <sup>^</sup>	5% <sup>^</sup>
	Younger settlers	9%	7% <sup>^</sup>	14% <sup>*</sup>	4% <sup>^</sup>	9%
	Older settlers	9%	8% <sup>^</sup>	7% <sup>^</sup>	11% <sup>*</sup>	11% <sup>*</sup>
	Younger jugglers	26%	26%	25%	24% <sup>^</sup>	26%
	Older jugglers	16%	16%	10% <sup>^</sup>	20% <sup>*</sup>	19% <sup>*</sup>
	Alone again	9%	10% <sup>*</sup>	8% <sup>^</sup>	9%	10%
	Active retirement – without partner	5%	4%	2% <sup>^</sup>	8% <sup>*</sup>	4%
	Active retirement – with partner	9%	8% <sup>^</sup>	4% <sup>^</sup>	15% <sup>*</sup>	10% <sup>*</sup>
<b>Urban/rural</b>	Metropolitan areas	34%	39% <sup>*</sup>	28% <sup>^</sup>	36% <sup>*</sup>	33% <sup>^</sup>
	Other urban	22%	18% <sup>^</sup>	26% <sup>*</sup>	25% <sup>*</sup>	22%
	Mixed urban/rural	32%	32%	34% <sup>*</sup>	29% <sup>^</sup>	34% <sup>*</sup>
	Rural	11%	11%	12% <sup>*</sup>	10% <sup>^</sup>	11%

		Mean	4 clusters			
			1	2	3	4
Weighted			1,299	989	687	1,488
Unweighted			1,436	695	930	1,375
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	6%*	4%^	4%^	7%*
	Higher professional occupations	7%	4%^	9%*	5%^	10%*
	Lower managerial and professional qualifications	23%	20%^	28%*	23%	24%*
	Intermediate occupations	10%	11%*	11%*	11%*	9%^
	Small employers and own account workers	10%	12%*	9%^	9%^	11%
	Lower supervisory and technical occupations	10%	9%^	9%^	11%*	10%
	Semi-routine occupations	14%	18%*	11%^	16%*	12%^
	Routine occupations	14%	16%*	13%^	17%*	12%^
	Never been in paid employment	4%	4%*	4%*	4%	3%^
<b>Working status</b>	Working	66%	65%^	71%*	48%^	72%*
	Not working	13%	15%*	8%^	27%*	9%^
	Studying	8%	9%*	15%*	2%^	5%^
	Retired	13%	12%^	6%^	23%*	14%*
Terminal education age		17.9	17.1^	18.6*	17.3^	18.3*
<b>Ethnicity</b>	White British	90%	88%^	96%*	90%*	87%^
	Asian	4%	6%*	1%^	4%^	5%*
	Black	2%	3%*	1%^	2%	3%*
	Other	4%	4%	2%^	4%^	5%*
<b>Partner</b>	No partner in HH	39%	46%*	45%*	35%^	30%^
	Partner in HH	61%	54%^	55%^	65%*	70%*
<b>Presence of children</b>	Children under 16 in HH	35%	37%*	36%*	29%^	35%
	No children in HH	65%	63%^	64%^	72%*	65%

**Table A6.14: K means model run using basic SPSS software, based on centred respondents – five-cluster solution**

		Mean	5 clusters				
			1	2	3	4	5
Weighted			1,388	362	909	1,234	570
Unweighted			1,270	343	646	1,394	783
<b>Motivational constructs</b>	More health conscious	5.7	6.0*	5.4^	5.5^	5.5^	5.6
	Easier/more control over healthy lifestyle	5.4	5.9*	5.2^	5.7*	5.3	4.1^
	More likely to value health	5.3	6.1*	5.5*	3.4^	5.8*	5.5*
	More risk-taking	4.5	4.2^	5.0*	4.9*	4.5	4.0^
	Greater self-esteem	5.7	5.9*	5.3^	5.9*	5.8	4.9^
	Greater control over own health	5.4	5.8*	5.2	5.5	5.6*	3.8^
	More externally focused aspirations	4.5	4.4	4.9*	4.4	4.8*	4.3^
	More goal-setting behaviour	5.5	5.7*	4.9^	5.6	5.5	5.1^
	Intend to lead a healthy lifestyle	5.8	6.2*	5.5^	5.9	5.5^	5.3^
	Enjoy leading a healthy lifestyle	5.3	6.1*	5.1	5.3	4.6^	5.1
	More likely to get ill over next few years	2.8	2.3^	3.0*	2.8	2.7	3.9*
	Believe a healthy lifestyle reduces chance of getting ill	5.8	6.2*	5.8	6.0*	5.5^	5.2^
	Health at risk soon if lifestyle not healthy	3.5	3.6	3.6	3.4	3.1^	4.2*
	More short-termist	4.6	4.0^	4.6	4.4	5.3*	4.8*
	Learn from mistakes	5.9	6.2*	3.4^	6.0*	6.1*	6.0*
More fatalistic about health	3.4	2.7^	3.4	2.6^	4.8*	3.6	
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	48%*	35%^	46%*	31%^	38%^
	Five or more sessions of exercise a week	34%	37%*	36%*	36%*	34%	25%^
	Low GHQ	82%	86%*	73%^	87%*	86%*	62%^
	Ideal BMI	44%	47%*	47%	51%*	41%^	28%^
	Don't smoke nowadays	77%	86%*	69%^	80%*	70%^	72%^
	Never taken a class A drug	97%	99%*	88%^	96%^	98%*	99%*
	Never taken cannabis	94%	97%*	85%^	90%^	95%*	95%*
	Below recommended alcohol consumption	68%	70%*	56%^	69%*	67%^	72%*

		Mean	5 clusters				
			1	2	3	4	5
	Weighted		1,388	362	909	1,234	570
	Unweighted		1,270	343	646	1,394	783
IMD grouping	1 – least deprived	20%	24%*	15% <sup>^</sup>	25%*	16% <sup>^</sup>	16% <sup>^</sup>
	2	20%	21%	16% <sup>^</sup>	23%*	20%	15% <sup>^</sup>
	3	20%	23%*	20%	20%	19% <sup>^</sup>	17% <sup>^</sup>
	4	20%	18% <sup>^</sup>	27%*	19% <sup>^</sup>	19% <sup>^</sup>	26%*
	5	10%	8% <sup>^</sup>	12%*	8% <sup>^</sup>	12%*	12%*
	6 – most deprived	10%	7% <sup>^</sup>	10%	6% <sup>^</sup>	14%*	14%*
	Actual age of respondent	42.7	45*	40 <sup>^</sup>	37 <sup>^</sup>	42	49*
Age	16–19	7%	3% <sup>^</sup>	10%*	13%*	8%*	2% <sup>^</sup>
	20–24	9%	5% <sup>^</sup>	14%*	15%*	11%*	4% <sup>^</sup>
	25–34	18%	19%*	19%*	22%*	18%	10% <sup>^</sup>
	35–44	21%	22%	19% <sup>^</sup>	22%*	19% <sup>^</sup>	24%*
	45–54	18%	21%*	15% <sup>^</sup>	11% <sup>^</sup>	18%	20%*
	55–64	16%	19%*	13% <sup>^</sup>	12% <sup>^</sup>	14% <sup>^</sup>	22%*
	65–74	11%	11%	10% <sup>^</sup>	5% <sup>^</sup>	13%*	18%*
Gender	Male	50%	49% <sup>^</sup>	53%*	50%	50%	49%
	Female	50%	51%*	47% <sup>^</sup>	51%	50%	51%
Lifestage	Freedom years – under 25	12%	6%	20%*	22%*	13%*	4% <sup>^</sup>
	Freedom years – 25 and over	6%	6%	2% <sup>^</sup>	5% <sup>^</sup>	7%*	6%*
	Younger settlers	9%	9%	6% <sup>^</sup>	15%*	7% <sup>^</sup>	6% <sup>^</sup>
	Older settlers	9%	11%*	4% <sup>^</sup>	8% <sup>^</sup>	8% <sup>^</sup>	12%*
	Younger jugglers	26%	25%	24% <sup>^</sup>	26%	27%*	23% <sup>^</sup>
	Older jugglers	16%	20%*	15% <sup>^</sup>	10% <sup>^</sup>	16%	19%*
	Alone again	9%	9%	15%*	7% <sup>^</sup>	9%	9% <sup>^</sup>
	Active retirement – without partner	5%	4% <sup>^</sup>	5%	2% <sup>^</sup>	5%*	8%*
	Active retirement – with partner	9%	10%*	8% <sup>^</sup>	4% <sup>^</sup>	9%	14%*
Urban/rural	Metropolitan areas	34%	33%	33% <sup>^</sup>	29% <sup>^</sup>	38%*	35%*
	Other urban	22%	21% <sup>^</sup>	32%*	25%*	18% <sup>^</sup>	23%*
	Mixed urban/rural	32%	35%*	26% <sup>^</sup>	35%*	31% <sup>^</sup>	31% <sup>^</sup>
	Rural	11%	11% <sup>^</sup>	9% <sup>^</sup>	12%	12%*	11% <sup>^</sup>

		Mean	5 clusters				
			1	2	3	4	5
Weighted			1,388	362	909	1,234	570
Unweighted			1,270	343	646	1,394	783
<b>NS-SEC</b>	Large employers and higher managerial occupations	6%	6%*	6%*	4%^	7%*	4%^
	Higher professional occupations	7%	11%*	5%^	9%*	3%^	6%^
	Lower managerial and professional qualifications	23%	25%*	23%	27%*	19%^	23%
	Intermediate occupations	10%	8%^	9%^	12%*	11%*	10%
	Small employers and own account workers	10%	11%*	8%^	9%^	12%*	8%^
	Lower supervisory and technical occupations	10%	10%*	9%^	10%	9%^	11%*
	Semi-routine occupations	14%	12%^	15%*	9%^	19%*	16%*
	Routine occupations	14%	13%^	18%*	12%^	15%*	17%*
	Never been in paid employment	4%	3%^	3%^	5%*	4%*	5%*
<b>Working status</b>	Working	66%	72%*	62%^	71%*	64%^	48%^
	Not working	13%	9%^	14%*	7%^	15%*	27%*
	Studying	8%	5%^	12%*	15%*	8%^	3%^
	Retired	13%	14%*	12%^	7%^	13%	22%*
Terminal education age		17.9	18.5*	17.8	18.5*	16.9^	17.4^
<b>Ethnicity</b>	White British	90%	87%^	92%*	96%*	87%^	91%*
	Asian	4%	5%*	2%^	1%^	7%*	4%^
	Black	2%	3%*	1%^	1%^	3%	2%
	Other	4%	5%*	4%*	2%^	4%^	3%^
<b>Partner</b>	No partner in HH	39%	31%^	50%*	43%*	43%*	35%^
	Partner in HH	61%	69%*	50%^	57%^	57%^	66%*
<b>Presence of children</b>	Children under 16 in HH	35%	36%	36%	36%	36%*	28%^
	No children in HH	65%	64%	64%	64%	64%^	72%*

**Table A6.15: K means model run using basic SPSS software, based on centred respondents – six-cluster solution**

		Mean	6 clusters					
			1	2	3	4	5	6
Weighted			313	795	427	817	1,080	1,031
Unweighted			316	567	609	794	1,213	937
<b>Motivational constructs</b>	More health conscious	5.7	5.3^	5.5	5.6	6.1*	5.4^	5.8*
	Easier/more control over healthy lifestyle	5.4	5.1^	5.7*	3.9^	5.9*	5.2^	5.7*
	More likely to value health	5.3	5.5	3.3^	5.5*	6.0*	5.7*	6.0*
	More risk-taking	4.5	4.9*	5.0*	3.9^	4.8*	4.4	3.9^
	Greater self-esteem	5.7	5.2^	5.9*	4.6^	6.0*	5.8	5.9*
	Greater control over own health	5.4	5.2^	5.5	3.5^	5.9	5.5	5.6
	More externally focused aspirations	4.5	4.9*	4.5	4.5	5.2*	4.5	3.9^
	More goal-setting behaviour	5.5	4.8^	5.6	5.0^	5.8*	5.4	5.6*
	Intend to lead a healthy lifestyle	5.8	5.5^	5.9	5.3^	6.2*	5.3^	6.0*
	Enjoy leading a healthy lifestyle	5.3	5.1	5.4	5.0^	6.0*	4.5^	5.8*
	More likely to get ill over next few years	2.8	3.1*	2.8	3.9*	1.7^	2.9*	2.9*
	Believe a healthy lifestyle reduces chance of getting ill	5.8	5.6^	6.0*	5.0^	6.3*	5.4^	6.2*
	Health at risk soon if lifestyle not healthy	3.5	3.7*	3.4	4.2*	3.1^	3.2^	3.9*
	More short-termist	4.6	4.8	4.4^	4.9*	4.4	5.4*	3.9^
	Learn from mistakes	5.9	3.3^	5.9	6.0	6.1*	6.1*	6.2*
	More fatalistic about health	3.4	3.7	2.6^	3.8*	3.4	4.8*	2.5^
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	32%^	45%*	37%^	47%*	30%^	47%*
	Five or more sessions of exercise a week	34%	34%	34%	25%^	41%*	35%	34%
	Low GHQ	82%	69%^	87%*	57%^	86%*	84%*	87%*
	Ideal BMI	44%	43%	54%*	29%^	53%*	39%^	41%^
	Don't smoke nowadays	77%	67%^	80%*	71%^	84%*	68%^	85%*
	Never taken a class A drug	97%	87%^	97%^	99%*	98%*	98%	99%*
	Never taken cannabis	94%	86%^	90%^	96%*	95%*	93%^	97%*
	Below recommended alcohol consumption	68%	56%^	67%^	75%*	66%^	68%	72%*

		Mean	6 clusters					
			1	2	3	4	5	6
	Weighted		313	795	427	817	1,080	1,031
	Unweighted		316	567	609	794	1,213	937
IMD grouping	1 – least deprived	100	15% <sup>^</sup>	25% <sup>*</sup>	12% <sup>^</sup>	22% <sup>*</sup>	17% <sup>^</sup>	24% <sup>*</sup>
	2	100	16% <sup>^</sup>	23% <sup>*</sup>	15% <sup>^</sup>	20%	20%	21% <sup>*</sup>
	3	100	20%	22% <sup>*</sup>	17% <sup>^</sup>	20%	17% <sup>^</sup>	23% <sup>*</sup>
	4	100	28% <sup>*</sup>	17% <sup>^</sup>	29% <sup>*</sup>	21% <sup>*</sup>	19% <sup>^</sup>	17% <sup>^</sup>
	5	100	11% <sup>*</sup>	8% <sup>^</sup>	12% <sup>*</sup>	7% <sup>^</sup>	14% <sup>*</sup>	9% <sup>^</sup>
	6 – most deprived	100	11% <sup>*</sup>	5% <sup>^</sup>	15% <sup>*</sup>	10% <sup>*</sup>	14% <sup>*</sup>	7% <sup>^</sup>
	Actual age of respondent	42.7	41 <sup>^</sup>	35 <sup>^</sup>	50 <sup>*</sup>	41	43	47 <sup>*</sup>
Age	16–19	7%	8% <sup>*</sup>	15% <sup>*</sup>	2% <sup>^</sup>	7% <sup>^</sup>	7%	2% <sup>^</sup>
	20–24	9%	15% <sup>*</sup>	15% <sup>*</sup>	3% <sup>^</sup>	12% <sup>*</sup>	9%	3% <sup>^</sup>
	25–34	18%	17% <sup>^</sup>	22% <sup>*</sup>	8% <sup>^</sup>	21% <sup>*</sup>	19%	16% <sup>^</sup>
	35–44	21%	21%	24% <sup>*</sup>	22% <sup>*</sup>	20% <sup>^</sup>	19% <sup>^</sup>	21%
	45–54	18%	15% <sup>^</sup>	8% <sup>^</sup>	20% <sup>*</sup>	18%	20% <sup>*</sup>	21% <sup>*</sup>
	55–64	16%	14% <sup>^</sup>	11% <sup>^</sup>	24% <sup>*</sup>	14% <sup>^</sup>	14% <sup>^</sup>	22% <sup>*</sup>
	65–74	11%	11% <sup>^</sup>	4% <sup>^</sup>	20% <sup>*</sup>	9% <sup>^</sup>	12% <sup>*</sup>	14% <sup>*</sup>
Gender	Male	50%	54% <sup>*</sup>	50%	46% <sup>^</sup>	53% <sup>*</sup>	51% <sup>*</sup>	45% <sup>^</sup>
	Female	50%	46% <sup>^</sup>	50%	54% <sup>*</sup>	47% <sup>^</sup>	49% <sup>^</sup>	55% <sup>*</sup>
Lifestage	Freedom years – under 25	12%	18% <sup>*</sup>	25% <sup>*</sup>	2% <sup>^</sup>	15% <sup>*</sup>	10% <sup>^</sup>	4% <sup>^</sup>
	Freedom years – 25 and over	6%	2% <sup>^</sup>	5% <sup>^</sup>	6% <sup>*</sup>	7% <sup>*</sup>	7% <sup>*</sup>	5% <sup>^</sup>
	Younger settlers	9%	6% <sup>^</sup>	16% <sup>*</sup>	4% <sup>^</sup>	11% <sup>*</sup>	6% <sup>^</sup>	9% <sup>^</sup>
	Older settlers	9%	4% <sup>^</sup>	8% <sup>^</sup>	12% <sup>*</sup>	8% <sup>^</sup>	8% <sup>^</sup>	13% <sup>*</sup>
	Younger jugglers	26%	24% <sup>^</sup>	27% <sup>*</sup>	23% <sup>^</sup>	24% <sup>^</sup>	28% <sup>*</sup>	24% <sup>^</sup>
	Older jugglers	16%	16%	7% <sup>^</sup>	20% <sup>*</sup>	16% <sup>^</sup>	18% <sup>*</sup>	21% <sup>*</sup>
	Alone again	9%	16% <sup>*</sup>	8% <sup>^</sup>	8% <sup>^</sup>	11% <sup>*</sup>	9%	8% <sup>^</sup>
	Active retirement – without partner	5%	5%	2% <sup>^</sup>	9% <sup>*</sup>	4% <sup>^</sup>	5% <sup>*</sup>	5% <sup>*</sup>
	Active retirement – with partner	9%	9%	4% <sup>^</sup>	15% <sup>*</sup>	6% <sup>^</sup>	9%	12% <sup>*</sup>

		Mean	6 clusters					
			1	2	3	4	5	6
Weighted			313	795	427	817	1,080	1,031
Unweighted			316	567	609	794	1,213	937
Urban/rural	Metropolitan areas	34%	35%	29% <sup>^</sup>	34%	34%	39%*	32% <sup>^</sup>
	Other urban	22%	30%*	24%*	24%*	20% <sup>^</sup>	18% <sup>^</sup>	23%*
	Mixed urban/rural	32%	27% <sup>^</sup>	34%*	31% <sup>^</sup>	35%*	31% <sup>^</sup>	33%
	Rural	11%	9% <sup>^</sup>	13%*	12%	10% <sup>^</sup>	12%	11%
NS-SEC	Large employers and higher managerial occupations	100	5% <sup>^</sup>	5% <sup>^</sup>	4% <sup>^</sup>	7%*	6%*	6%
	Higher professional occupations	100	4% <sup>^</sup>	10%*	6% <sup>^</sup>	10%*	3% <sup>^</sup>	9%*
	Lower managerial and professional qualifications	100	23%	26%*	23%	22% <sup>^</sup>	19% <sup>^</sup>	28%*
	Intermediate occupations	100	10%	12%*	9% <sup>^</sup>	7% <sup>^</sup>	12%*	11%
	Small employers and own account workers	100	8% <sup>^</sup>	9% <sup>^</sup>	9% <sup>^</sup>	11%*	12%*	11%
	Lower supervisory and technical occupations	100	11%*	10%	9%	11%*	9% <sup>^</sup>	9% <sup>^</sup>
	Semi-routine occupations	100	14%	10% <sup>^</sup>	16%*	15%*	17%*	11% <sup>^</sup>
	Routine occupations	100	17%*	12% <sup>^</sup>	20%*	12% <sup>^</sup>	16%*	12% <sup>^</sup>
	Never been in paid employment	100	5%*	4%*	4%	3% <sup>^</sup>	4%*	3% <sup>^</sup>
Working status	Working	100	62% <sup>^</sup>	70%*	44% <sup>^</sup>	74%*	63% <sup>^</sup>	70%*
	Not working	100	16%*	7% <sup>^</sup>	30%*	10% <sup>^</sup>	17%*	10% <sup>^</sup>
	Studying	100	9%*	17%*	2% <sup>^</sup>	7% <sup>^</sup>	7% <sup>^</sup>	4% <sup>^</sup>
	Retired	100	13%	6% <sup>^</sup>	24%*	9% <sup>^</sup>	13%	17%*
	Terminal education age	100	17.6 <sup>^</sup>	18.8*	17.0 <sup>^</sup>	18.3*	16.9 <sup>^</sup>	18.4*
Ethnicity	White British	100	91%*	96%*	92%*	82% <sup>^</sup>	89% <sup>^</sup>	91%*
	Asian	100	2% <sup>^</sup>	2% <sup>^</sup>	4% <sup>^</sup>	7%*	6%*	4% <sup>^</sup>
	Black	100	2% <sup>^</sup>	1% <sup>^</sup>	2% <sup>^</sup>	5%*	3%*	1% <sup>^</sup>
	Other	100	6%*	2% <sup>^</sup>	3% <sup>^</sup>	5%*	3% <sup>^</sup>	4%
Partner	No partner in HH	100	49%*	45%*	34% <sup>^</sup>	42%*	42%*	27% <sup>^</sup>
	Partner in HH	100	51% <sup>^</sup>	55% <sup>^</sup>	67%*	58% <sup>^</sup>	58% <sup>^</sup>	73%*
Presence of children	Children under 16 in HH	100	34%	36%	29% <sup>^</sup>	35%	38%	34% <sup>^</sup>
	No children in HH	100	66%	64%	71%*	65%	62% <sup>^</sup>	67%*

**Table A6.16: K means model run using basic SPSS software, based on centred respondents – seven-cluster solution**

		Mean	7 clusters						
			1	2	3	4	5	6	7
Weighted			989	413	963	769	815	265	248
Unweighted			1,037	566	881	541	816	259	336
<b>Motivational constructs</b>	More health conscious	5.7	5.2^	5.6	5.9*	5.6	6.0*	5.5^	5.6
	Easier/more control over healthy lifestyle	5.4	5.1^	3.9^	5.8*	5.7*	5.9*	5.2^	5.1^
	More likely to value health	5.3	5.7*	5.6*	6.0*	3.3^	6.0*	5.6*	5.3
	More risk-taking	4.5	4.5	4.0^	3.9^	5.0*	4.7*	4.9*	4.3^
	Greater self-esteem	5.7	5.8	4.5^	5.9*	5.9*	5.9*	5.3^	5.8
	Greater control over own health	5.4	5.5	3.7^	5.6*	5.5	5.9*	5.2^	4.9^
	More externally focused aspirations	4.5	4.6	4.5	3.9^	4.5	5.2*	4.9*	4.6
	More goal-setting behaviour	5.5	5.4	4.9^	5.6*	5.6*	5.8*	5.0^	5.5
	Intend to lead a healthy lifestyle	5.8	5.2^	5.3^	6.0*	5.9*	6.2*	5.6^	5.7
	Enjoy leading a healthy lifestyle	5.3	4.3^	5.2	5.8*	5.4	6.0*	5.1	5.1
	More likely to get ill over next few years	2.8	3.0*	3.9*	2.8	2.8	1.7^	2.9*	3.1*
	Believe a healthy lifestyle reduces chance of getting ill	5.8	5.8	5.4^	6.2*	6.1*	6.3*	5.8	2.7^
	Health at risk soon if lifestyle not healthy	3.5	3.2^	4.2*	4.0*	3.4	2.9^	3.6*	3.3^
	More short-termist	4.6	5.4*	4.9*	3.8^	4.3^	4.6	4.4	5.1*
	Learn from mistakes	5.9	6.0*	5.9	6.1*	5.9	6.2*	3.0^	6.1*
	More fatalistic about health	3.4	4.4*	3.9*	2.6^	2.5^	3.6	3.5	4.1*
<b>Health behaviours</b>	Five or more portions of fruit or veg a day	41%	31%^	38%^	47%*	46%*	44%*	36%^	33%^
	Five or more sessions of exercise a week	34%	33%^	26%^	35%	36%*	38%	40%*	31%^
	Low GHQ	82%	86%*	55%^	87%*	87%*	85%*	70%^	77%^
	Ideal BMI	44%	39%^	29%^	43%	55%	50%	45%	36%^
	Don't smoke nowadays	77%	67%^	72%^	84%*	82%*	84%*	69%^	72%^

		Mean	7 clusters						
			1	2	3	4	5	6	7
	<b>Weighted</b>		989	413	963	769	815	265	248
	<b>Unweighted</b>		1,037	566	881	541	816	259	336
	Never taken a class A drug	97%	97% <sup>^</sup>	99% <sup>*</sup>	99% <sup>*</sup>	97% <sup>^</sup>	98% <sup>*</sup>	87% <sup>^</sup>	98% <sup>*</sup>
	Never taken cannabis	94%	92% <sup>^</sup>	96% <sup>*</sup>	97% <sup>*</sup>	91% <sup>^</sup>	95% <sup>*</sup>	84% <sup>^</sup>	94% <sup>*</sup>
	Below recommended alcohol consumption	68%	66% <sup>^</sup>	74% <sup>*</sup>	70% <sup>*</sup>	68%	69% <sup>*</sup>	55% <sup>^</sup>	68%
<b>IMD grouping</b>	1 – least deprived	100	20%	13% <sup>^</sup>	23% <sup>*</sup>	25% <sup>*</sup>	22% <sup>*</sup>	12% <sup>^</sup>	11% <sup>^</sup>
	2	100	21% <sup>*</sup>	14% <sup>^</sup>	21%	23% <sup>*</sup>	20%	15% <sup>^</sup>	19% <sup>^</sup>
	3	100	17% <sup>^</sup>	19% <sup>^</sup>	24% <sup>*</sup>	22% <sup>*</sup>	21% <sup>*</sup>	19% <sup>^</sup>	15% <sup>^</sup>
	4	100	18% <sup>^</sup>	28% <sup>*</sup>	17% <sup>^</sup>	18% <sup>^</sup>	20%	30% <sup>*</sup>	27% <sup>*</sup>
	5	100	13% <sup>*</sup>	12% <sup>*</sup>	10% <sup>^</sup>	8% <sup>^</sup>	7% <sup>^</sup>	13% <sup>*</sup>	11% <sup>*</sup>
	6 – most deprived	100	13% <sup>*</sup>	14% <sup>*</sup>	6% <sup>^</sup>	5% <sup>^</sup>	11% <sup>*</sup>	11% <sup>*</sup>	17% <sup>*</sup>
	Actual age of respondent	42.7	42	50 <sup>*</sup>	48 <sup>*</sup>	36 <sup>^</sup>	41	40 <sup>^</sup>	44
<b>Age</b>	16–19	7%	9% <sup>*</sup>	2% <sup>^</sup>	2% <sup>^</sup>	15% <sup>*</sup>	6% <sup>^</sup>	8% <sup>*</sup>	3% <sup>^</sup>
	20–24	9%	9%	4% <sup>^</sup>	3% <sup>^</sup>	15% <sup>*</sup>	11% <sup>*</sup>	16% <sup>*</sup>	10% <sup>*</sup>
	25–34	18%	19%	8% <sup>^</sup>	16% <sup>^</sup>	22% <sup>*</sup>	21% <sup>*</sup>	19% <sup>*</sup>	19% <sup>*</sup>
	35–44	21%	19% <sup>^</sup>	24% <sup>*</sup>	21%	24% <sup>*</sup>	21%	20% <sup>^</sup>	20% <sup>^</sup>
	45–54	18%	18%	21% <sup>*</sup>	23% <sup>*</sup>	9% <sup>^</sup>	19% <sup>*</sup>	13% <sup>^</sup>	19% <sup>*</sup>
	55–64	16%	16%	23% <sup>*</sup>	21% <sup>*</sup>	11% <sup>^</sup>	13% <sup>^</sup>	14% <sup>^</sup>	16%
	65–74	11%	12%	18% <sup>*</sup>	14% <sup>*</sup>	5% <sup>^</sup>	10% <sup>^</sup>	10% <sup>^</sup>	13% <sup>*</sup>
<b>Gender</b>	Male	50%	53% <sup>*</sup>	47% <sup>^</sup>	44% <sup>^</sup>	48% <sup>^</sup>	55% <sup>*</sup>	53% <sup>*</sup>	50%
	Female	50%	48% <sup>^</sup>	53% <sup>*</sup>	56% <sup>*</sup>	53% <sup>*</sup>	45% <sup>^</sup>	47% <sup>^</sup>	50%
<b>Lifestage</b>	Freedom years – under 25	12%	11% <sup>^</sup>	4% <sup>^</sup>	4% <sup>^</sup>	25% <sup>*</sup>	13% <sup>*</sup>	20% <sup>*</sup>	8% <sup>^</sup>
	Freedom years – 25 and over	6%	6%	7% <sup>*</sup>	5% <sup>^</sup>	5% <sup>^</sup>	7% <sup>*</sup>	3% <sup>^</sup>	6% <sup>*</sup>
	Younger settlers	9%	8% <sup>^</sup>	4% <sup>^</sup>	9% <sup>^</sup>	15% <sup>*</sup>	11% <sup>*</sup>	6% <sup>^</sup>	3% <sup>^</sup>
	Older settlers	9%	9% <sup>^</sup>	12% <sup>*</sup>	11% <sup>*</sup>	8% <sup>^</sup>	9% <sup>^</sup>	4% <sup>^</sup>	8% <sup>^</sup>
	Younger jugglers	26%	28% <sup>*</sup>	24% <sup>^</sup>	23% <sup>^</sup>	26%	24% <sup>^</sup>	25%	33% <sup>*</sup>
	Older jugglers	16%	17% <sup>*</sup>	21% <sup>*</sup>	22% <sup>*</sup>	7% <sup>^</sup>	16%	14% <sup>^</sup>	17%
	Alone again	9%	9%	7% <sup>^</sup>	8% <sup>^</sup>	8% <sup>^</sup>	11% <sup>*</sup>	16% <sup>*</sup>	10% <sup>*</sup>

		Mean	7 clusters						
			1	2	3	4	5	6	7
Weighted			989	413	963	769	815	265	248
Unweighted			1,037	566	881	541	816	259	336
	Active retirement – without partner	5%	5%	9%*	5%*	2%^	4%^	4%^	6%*
	Active retirement – with partner	9%	8%^	14%*	13%*	4%^	6%^	9%*	9%
<b>Urban/rural</b>	Metropolitan areas	34%	37%*	36%*	33%	29%^	36%*	30%^	34%
	Other urban	22%	19%^	24%*	22%	24%*	21%^	34%*	22%
	Mixed urban/rural	32%	33%	30%^	34%*	34%*	34%*	27%^	28%^
	Rural	11%	11%	10%^	11%	13%*	9%^	9%^	16%*
<b>NS-SEC</b>	Large employers and higher managerial occupations	100	7%*	4%^	6%*	5%^	5%^	8%*	3%^
	Higher professional occupations	100	3%^	5%^	10%*	10%*	10%*	4%^	3%^
	Lower managerial and professional qualifications	100	20%^	23%	27%*	26%*	22%^	24%*	20%^
	Intermediate occupations	100	12%*	10%	10%	12%*	7%^	8%^	11%*
	Small employers and own account workers	100	13%*	7%^	10%	10%^	11%*	9%^	9%^
	Lower supervisory and technical occupations	100	9%^	9%^	9%^	10%*	11%*	10%	13%*
	Semi-routine occupations	100	17%*	18%*	11%^	9%^	15%*	13%	18%*
	Routine occupations	100	15%*	18%*	13%^	12%^	13%^	18%*	17%*
	Never been in paid employment	100	3%^	5%*	3%^	4%*	4%^	3%^	5%*
<b>Working status</b>	Working	100	65%^	45%^	69%*	70%*	73%*	63%^	62%^
	Not working	100	15%*	31%*	10%^	7%^	11%^	15%*	19%*
	Studying	100	8%	2%^	4%^	17%*	7%^	10%*	4%^
	Retired	100	13%	22%*	18%*	7%^	10%^	13%	15%*
	Terminal education age	100	17.2^	17.1^	18.4*	18.8*	18.1	17.6	16.5^
<b>Ethnicity</b>	White British	100	90%	90%	91%*	96%*	83%^	93%*	88%^
	Asian	100	5%*	4%^	3%^	1%^	8%*	2%^	6%*

		Mean	7 clusters						
			1	2	3	4	5	6	7
	<b>Weighted</b>		989	413	963	769	815	265	248
	<b>Unweighted</b>		1,037	566	881	541	816	259	336
	Black	100	2%^	3%*	2%^	0%^	5%*	1%^	4%*
	Other	100	3%^	3%^	5%*	2%^	5%*	4%*	2%^
<b>Partner</b>	No partner in HH	100	41%*	35%^	28%^	45%*	41%*	50%*	39%
	Partner in HH	100	59%^	65%*	72%*	55%^	60%^	50%^	61%
<b>Presence of children</b>	Children under 16 in HH	100	37%*	27%^	33%^	36%*	36%	34%	41%*
	No children in HH	100	63%^	73%*	67%*	64%^	65%	66%	59%^

# Appendix 7: Final Motivation Solution

**Table A7.1: Profile of final motivation solution**

		Mean					
			Hedonistic Immortals	Live for Today's	Unconfident Fatalists	Health conscious Realists	Balanced Compensators
		Weighted	4,928	911	1,266	860	1,041
	Unweighted	4,928	652	1,396	1,101	936	843
<b>Motivational constructs</b>	More health conscious	5.6	98	94 <sup>^</sup>	98 <sup>^</sup>	105*	107*
	Easier/More control over healthy lifestyle	5.4	105*	97 <sup>^</sup>	81 <sup>^</sup>	108*	110*
	More likely to value health	5.3	62 <sup>^</sup>	106*	103	113*	113*
	More risk-taking	4.5	110*	101	94 <sup>^</sup>	89 <sup>^</sup>	107*
	Greater self-esteem	5.7	103*	102	86 <sup>^</sup>	104*	104*
	Greater control over own health	5.4	102	103	79 <sup>^</sup>	104*	110*
	More externally focused aspirations	4.5	97	102	99	87 <sup>^</sup>	116*
	More goal-setting behaviour	5.5	102*	99	91 <sup>^</sup>	103*	106*
	Intend to lead healthy lifestyle	5.8	102	93 <sup>^</sup>	93 <sup>^</sup>	106*	109*
	Enjoy leading a healthy lifestyle	5.3	102	83 <sup>^</sup>	96	110*	114*
	More likely to become ill over next few years	2.8	101	106*	130*	100	61 <sup>^</sup>
	Believe healthy lifestyle reduces chance of becoming ill	5.8	104*	94 <sup>^</sup>	90 <sup>^</sup>	107*	107*
	Health at risk soon if lifestyle not healthy	3.5	98	90 <sup>^</sup>	116*	113*	85 <sup>^</sup>
	More short-termist	4.6	92 <sup>^</sup>	118*	103	83 <sup>^</sup>	100
	Learn from mistakes	5.9	101	103*	85 <sup>^</sup>	104	105
More fatalistic about health	3.5	72 <sup>^</sup>	135*	109*	73 <sup>^</sup>	102	
<b>Health behaviours (%)</b>	Five or more portions of fruit or veg per day	41	114*	76 <sup>^</sup>	90 <sup>^</sup>	117*	110*
	Five or more sessions of exercise per week	34	100	104	82 <sup>^</sup>	103	108*

		Mean					
			Hedonistic Immortals	Live for Todays	Unconfident Fatalists	Health conscious Realists	Balanced Compensators
		Weighted	4,928	911	1,266	860	1,041
	Unweighted	4,928	652	1,396	1,101	936	843
<b>Health behaviours (%)</b>	Low GHQ	82	106*	104*	77^	107*	103*
	Ideal BMI	43	121*	88^	78^	103	113*
	Don't smoke nowadays	78	105*	88^	93^	110*	108*
	Never taken a Class A drug	97	100^	100	98^	101*	100*
	Never taken cannabis	94	97^	99^	99^	103*	102*
	Below recommended alcohol consumption	68	100	97^	100	102	101
<b>IMD grouping (%)</b>	1 – Least deprived	20	126*	85^	68^	121*	101
	2	20	118*	101	82^	98	100
	3	20	102	90^	90^	122*	95
	4	20	85^	97	131*	77^	117*
	5	10	84^	121*	118*	100	68^
	6 – Most deprived	10	54^	132*	140*	64^	106
<b>Age (%)</b>	16–19	7	210*	104	74^	29^	90^
	20–24	9	146*	113*	75^	47^	121*
	25–34	18	126*	99	65^	94	116*
	35–44	21	112*	92^	99	102	97
	45–54	18	54^	106	107	126*	102
	55–64	16	68^	94	124*	126*	87^
	65–74	11	47^	100	150*	119*	84^
<b>Gender (%)</b>	Male	50	100	103	97	87	113
	Female	50	100	97	103	112*	87
<b>Lifestage (%)</b>	Freedom years – under 25	12	196*	90^	74^	40^	110*
	Freedom years – 25 and over	6	91	106	81^	89^	132*
	Younger settlers	9	161*	80^	52^	101	110*
	Older settlers	9	86^	86^	101	126*	104
	Younger jugglers	26	109*	106*	90^	96	96
	Older jugglers	16	50^	113*	112*	125*	92^
	Alone agains	9	76^	104	117*	91	113*

		Mean					
			Hedonistic Immortals	Live for Todays	Unconfident Fatalists	Health conscious Realists	Balanced Compensators
		Weighted	4,928	911	1,266	860	1,041
	Unweighted	4,928	652	1,396	1,101	936	843
<b>Lifestage (%)</b>	Active retirement – without partner	5	53 <sup>^</sup>	100	162 <sup>*</sup>	97	91 <sup>^</sup>
	Active retirement – with partner	9	47 <sup>^</sup>	96	152 <sup>*</sup>	136 <sup>*</sup>	68 <sup>^</sup>
<b>NS-SEC (%)</b>	Large employers and higher managerial occupations	6	109 <sup>*</sup>	86 <sup>^</sup>	81 <sup>^</sup>	130 <sup>*</sup>	93
	Higher professional occupations	8	129 <sup>*</sup>	36 <sup>^</sup>	82 <sup>^</sup>	134 <sup>*</sup>	142 <sup>*</sup>
	Lower managerial and professional qualifications	24	127 <sup>*</sup>	75 <sup>^</sup>	87 <sup>^</sup>	123 <sup>*</sup>	93 <sup>^</sup>
	Intermediate occupations	10	106	118 <sup>*</sup>	79 <sup>^</sup>	108 <sup>*</sup>	79 <sup>^</sup>
	Small employers and own account workers	11	92 <sup>^</sup>	123 <sup>*</sup>	88 <sup>^</sup>	82 <sup>^</sup>	109 <sup>*</sup>
	Lower supervisory and technical occupations	10	62 <sup>^</sup>	110 <sup>*</sup>	129 <sup>*</sup>	92 <sup>^</sup>	106
	Semi-routine occupations	13	81 <sup>^</sup>	133 <sup>*</sup>	112 <sup>*</sup>	68 <sup>^</sup>	98
	Routine occupations	12	72 <sup>^</sup>	117 <sup>*</sup>	134 <sup>*</sup>	76 <sup>^</sup>	99
	Never been in paid employment	3	107	116 <sup>*</sup>	145 <sup>*</sup>	73 <sup>^</sup>	56 <sup>^</sup>
<b>Working status (%)</b>	Working	66	106 <sup>*</sup>	98	76 <sup>^</sup>	107 <sup>*</sup>	112 <sup>*</sup>
	Not working	13	58 <sup>^</sup>	115 <sup>*</sup>	182 <sup>*</sup>	72 <sup>^</sup>	74 <sup>^</sup>
	Studying	7	208 <sup>*</sup>	94	68 <sup>^</sup>	52 <sup>^</sup>	85 <sup>^</sup>
	Retired	13	49 <sup>^</sup>	97	156 <sup>*</sup>	121 <sup>*</sup>	76 <sup>^</sup>
	Terminal education age (years)	17.9	104 <sup>*</sup>	95 <sup>^</sup>	97 <sup>^</sup>	103 <sup>*</sup>	102 <sup>*</sup>
<b>Ethnicity (%)</b>	White British	90	108 <sup>*</sup>	99 <sup>^</sup>	102 <sup>*</sup>	102 <sup>*</sup>	90 <sup>^</sup>
	Asian	4	30 <sup>^</sup>	127 <sup>*</sup>	78 <sup>^</sup>	71 <sup>^</sup>	191 <sup>*</sup>
	Black	2	21 <sup>^</sup>	108 <sup>*</sup>	82 <sup>^</sup>	59 <sup>^</sup>	241 <sup>*</sup>
	Other	4	45 <sup>^</sup>	92 <sup>^</sup>	99	116 <sup>*</sup>	153 <sup>*</sup>
<b>Partner (%)</b>	No partner in household	39	109 <sup>*</sup>	106 <sup>*</sup>	106 <sup>*</sup>	73 <sup>^</sup>	108 <sup>*</sup>
	Partner in household	61	94 <sup>^</sup>	96 <sup>^</sup>	96 <sup>^</sup>	117 <sup>*</sup>	95 <sup>^</sup>
<b>Presence of children (%)</b>	Kids under 16 in household	35	108 <sup>*</sup>	105 <sup>*</sup>	88 <sup>^</sup>	99	97
	No kids in household	65	96 <sup>^</sup>	97 <sup>^</sup>	106 <sup>*</sup>	101	102

# Appendix 8: Environment Cluster Profiles

**Table A8.1: Five-cluster solution based on all environments**

	5 clusters				
	1	2	3	4	5
Sample	259	982	1742	895	601
Social norms: parents' opinions	76 <sup>^</sup>	169*	35 <sup>^</sup>	220*	6 <sup>^</sup>
Social norms: others' opinions	101	0 <sup>^</sup>	126*	138*	132*
Social norms: partner/childrens' opinions	93 <sup>^</sup>	123*	121*	34 <sup>^</sup>	104*
Issues with area: IMD score	127*	109*	68 <sup>^</sup>	119*	139*
Issues with area: alcohol, drugs, vandalism	119*	119*	42 <sup>^</sup>	134*	179*
Household influences (smoking, drinking, drugs)	88 <sup>^</sup>	113*	56 <sup>^</sup>	154*	131*
Parental autonomy	95 <sup>^</sup>	103	100	108*	85 <sup>^</sup>
Isolation	108*	91 <sup>^</sup>	106*	88 <sup>^</sup>	113*
Time (stress)	83 <sup>^</sup>	109*	86 <sup>^</sup>	142*	70 <sup>^</sup>
Social capital (satisfaction with area/wallet return likely)	84 <sup>^</sup>	98	114*	94 <sup>^</sup>	79 <sup>^</sup>
Social capital (civic action/participation)	82 <sup>^</sup>	99 <sup>^</sup>	113*	95 <sup>^</sup>	79 <sup>^</sup>
Financial (how getting on)	83 <sup>^</sup>	99	109*	98	86 <sup>^</sup>
Easy to get to an outdoor space, leisure centre or community centre for sport or exercise?	40 <sup>^</sup>	104*	104*	103	103
Portions of fruit or veg per day	72 <sup>^</sup>	87 <sup>^</sup>	124*	85 <sup>^</sup>	84 <sup>^</sup>
Sessions of 30 minutes or more of exercise per week	86 <sup>^</sup>	97 <sup>^</sup>	99	101	111*
Smoke nowadays	94 <sup>^</sup>	102*	111*	86 <sup>^</sup>	89 <sup>^</sup>
Taken Class A drug	102*	99	102*	98 <sup>^</sup>	100 <sup>^</sup>
Mental health GHQ	82 <sup>^</sup>	102*	107*	93 <sup>^</sup>	95 <sup>^</sup>
BMI	78 <sup>^</sup>	106*	94	120*	89 <sup>^</sup>
Alcohol consumption – recommended amount	68 <sup>^</sup>	94 <sup>^</sup>	116*	89 <sup>^</sup>	94 <sup>^</sup>

**Table A8.2: Five-cluster solution based on reduced inputs**

	5 clusters				
	1	2	3	4	5
Sample	961	1,969	866	276	408
Issues with area: IMD score	140*	63^	108*	125*	148*
Issues with area: alcohol, drugs, vandalism	0^	13^	308*	116*	303*
Social capital (satisfaction with area/wallet return likely)	92^	114*	100	85^	62^
Financial (how getting on)	94^	107*	107*	84^	75^
Easy to get to an outdoor space, leisure centre or community centre for sport or exercise?	104	104*	104*	41^	102
Portions of fruit or veg per day	81^	116*	109*	77^	64^
Sessions of 30 minutes or more of exercise per week	99	97	105*	83^	119*
Smoke nowadays	90^	111*	98^	95^	79^
Taken Class A drug	99^	101*	99^	102*	98^
Mental health GHQ	98^	105*	102*	83^	87^
BMI	97^	102	100	85^	107*
Alcohol consumption – recommended amount	89^	110*	110*	75^	74^

# Appendix 9: Deprivation and IMD Analysis

Analysis of the five motivation segments by Index of Multiple Deprivation (IMD) reveals that all motivation segments appear to a greater or lesser degree in all IMD categories. Great proportions of the Live for Today's segments and the Unconfident Fatalists live in areas of higher deprivation but there are still significant proportions of the more motivated segments – Health-conscious Realists and Balanced Compensators – living in very deprived areas (table A9.1).

The primary aim of the analysis in this appendix was to answer the question of whether all the respondents we had identified as 'resilient' were genuinely living in deprived areas, or whether they had been 'misclassified' as being resilient when, in fact, their personal circumstances were not deprived or their area, though within a super-output area (SOA) classified as having a higher IMD, was, perhaps, not as high on the scale as the rest of their SOA. This is a reflection of the fact that the final stage of the segmentation was actually conducted on IMD – which is a household-level measure – whereas we are trying to define respondents on an individual basis.

The chief obstacle to this exercise is the fact that IMD is based on a number of different measures, with the relative impacts of each one given in parentheses:

- income deprivation (22.5%)
- employment deprivation (22.5%)
- health deprivation and disability (13.5%)

- education, skills and training deprivation (13.5%)
- barriers to housing and services (9.3%)
- crime (9.3%)
- living environment deprivation (9.3%).

In respect of validating this for individuals, we do not have all the same information. We have information on:

- income;
- poverty (based on income and household circumstances);
- social grade; and
- education level of respondent.

Given that all but one of the five motivation clusters are split into the most deprived half and the least deprived half, we wanted to create a break that replicated this break as far as possible (or the underlying thinking behind it, namely that a given set of motivations could apply to the people in 'good' or 'bad' areas/circumstances, resulting in differing health behaviours and outcomes).

After consideration of the variables available to us, as well as how deprivation at an individual level is best defined, we decided to create a variable combining the measure of whether someone is living in a household in poverty or whether someone is in a household that is classified under the NC-SEC system as routine/manual/never been in paid employment. While there is still an inherent flaw in this system in

that it is still taking into account the household rather than only the individual, it was felt that this was still a much closer indication of the circumstances of the individual than the SOA-based IMD classification.

This led to a definition of 44.7% (weighted) of the population as deprived, compared with the cut-off of 50% used to split most of the final segments.

A straight comparison of this definition against the six IMD groups shows some association, but not a strong one (table A9.2).

This shows that among the lowest IMD quintile (1), three-quarters of respondents are classified as not deprived according to this definition, whereas the reverse is true of the least deprived decile, where 77% are classed as deprived.

We also compared the final 11 clusters against this deprivation measure. If the deprivation measure was a close match to IMD, then we would expect a high degree of correlation between the segments and the deprivation measure (table A9.4).

It turns out that the association is of a similar strength to that with IMD. The main exception is 'Unconfident Fatalist – negative environment', where 84% of those are classified as deprived, but none of the other segments shows any strong connection with the deprivation measure. If we were to undertake to reallocate respondents to the 'positive' and 'negative' segments based on this household level deprivation measure rather than IMD, then we would have to reallocate around one-third of all respondents, leading to the final clusters looking very different.

**Table A9.1: The five motivation segments by the six IMD categories (IMD 1 = least deprived; IMD 6 = most deprived)**

		IMD 6 categories						Total
		1	2	3	4	5	6	
		%	%	%	%	%	%	%
Motivation cluster	Hedonistic Immortals	25.3	23.4	20.4	17.2	8.2	5.5	100
	Live for Todays	17.1	19.5	18.3	19.5	12.2	13.4	100
	Unconfident Fatalists	13.7	16.4	17.7	26.3	11.8	14.0	100
	Health-conscious Realists	24.2	19.7	24.7	15.3	9.6	6.5	100
	Balanced Compensators	20.3	20.1	19.0	23.0	6.9	10.7	100
Total		20.1	19.8	20.1	20.0	9.9	10.1	100

**Table A9.2: IMD 6 categories (%)**

	1	2	3	4	5	6	Total
Not deprived	74.1	67.5	58.1	43.4	42.8	23.3	55.3
Deprived	25.9	32.5	41.9	56.6	57.2	76.7	44.7

**Table A9.3: Income measure by IMD 6 categories (%)**

	1 – least deprived	2	3	4	5	6 – most deprived	Total
High income	100	89	56	4	0	0	50
Low income	0	11	44	96	100	100	50

**Table A9.4: HCA final segments (%)**

	Hedonistic Immortals +ve environment	Hedonistic Immortals –ve environment	Live for Todays +ve environment	Live for Todays –ve environment	Unconfident Fatalists +ve environment	Unconfident Fatalists mid environment	Unconfident Fatalists –ve environment	Health conscious Realists +ve environment	Health conscious Realists –ve environment	Balanced Compensators +ve environment	Balanced Compensators –ve environment	Total
Not deprived	73	48	57	35	69	37	17	79	54	67	41	53
Deprived	27	52	43	66	31	63	84	22	46	33	59	45
	627	277	688	563	261	481	119	459	579	498	339	4,892

**Table A9.5: IMD income measure by HCA final segments**

	Hedonistic Immortals +ve environment	Hedonistic Immortals –ve environment	Live for Todays +ve environment	Live for Todays –ve environment	Unconfident Fatalists +ve environment	Unconfident Fatalists mid environment	Unconfident Fatalists –ve environment	Health conscious Realists +ve environment	Health conscious Realists –ve environment	Balanced Compensators +ve environment	Balanced Compensators –ve environment	Total
Low income	85	4	78	2	93	22	1	96	28	79	2	50
High income	15	96	22	98	7	78	99	4	72	21	98	50

An alternative suggested was to use the income deprivation measure within IMD alone to define the final clusters. This would retain the flaw that we were defining based on a wide base of geography rather than a household or individual level, but we understand that this measure is used within other governmental studies. It has the benefit that has a clear interpretation compared with the whole of IMD.

Comparing the IMD income scale with the IMD groupings, the association is clear (table A9.3).

The only IMD quintile not well associated with IMD income decile is the third, which indicates that some areas classified as being below the median for income are less deprived when it comes to other measures.

We can also compare the IMD income median break with the original 11 clusters (table A9.5).

A reallocation based on these measures would involve many fewer respondents switching clusters. However, the original issue relating to individual versus SOA-level classification would remain as before.

Finally, for good measure, we also compared our own deprivation measure with the income IMD measure (split at the median). Although more of those from the lowest-income IMD groups were classified as being deprived, the overlap was not very great (table A9.6).

**Table A9.6: Income measured by whether deprived**

	Not deprived	Deprived	Total
High income	62	36	50
Low income	39	65	50

# Appendix 10: Hierarchical Cluster Analysis Details

Our analysis to this point had led to the development of a five-cluster motivation segmentation solution; a lifestages segmentation (which had identified nine groups of people on the basis of various lifestage dimensions); and an environment segmentation (which had assigned respondents into one of six IMD groupings).

To increase simplicity, and therefore help with communication and implementation of the overall framework, the decision was made to merge the motivation and environment segmentations. The combination of these two dimensions created 30 possible cells of people, and it was felt that this was too high a number to be manageable. We therefore undertook analyses to enable us to combine IMD groupings within motivation segment. For instance, we could combine IMD groups 1, 2 and 3, and then 4, 5 and 6, to give two sub-segments within, for instance, motivation segment 1.

Two questions arose: first, what is the most meaningful way to combine the IMD groups – for instance (1 and 2) versus (3, 4, 5, and 6); or (1, 2, 3 and 4) versus (5 and 6)? After discussion, it was agreed that the most appropriate split should be discerned from analysis optimised to reveal the biggest possible differences in health-related behaviours between the final segments. Secondly, should the IMD groupings be the same within each motivation segment?

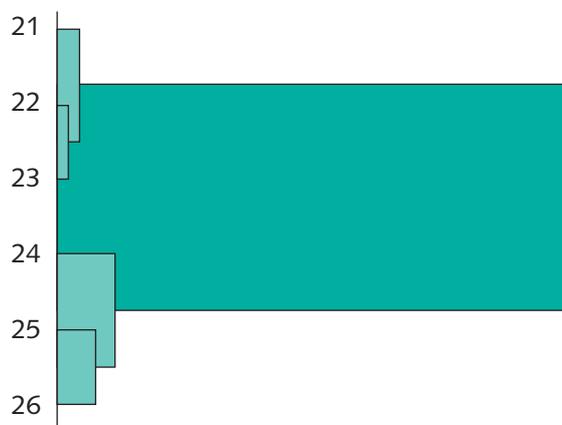
In order to address these questions we conducted hierarchical cluster analysis (HCA), another widely used form of cluster analysis.

Each motivation cluster was split into six (IMD 1, IMD 2, IMD 3, IMD 4, IMD 5, IMD 6) and profiled on six of the health behaviours – five or more portions of fruit or veg per day, five or more sessions of exercise per week, low GHQ, ideal BMI, don't smoke nowadays and below recommended alcohol. Illegal drugs was excluded as an outcome variable due to having a low base size. Then, within each motivation cluster, an agglomerative 'bottom-up' approach was used where each of the six IMD groups starts as its own cluster, then pairs of clusters are merged based upon similarity on all health behaviours (using a reduced Euclidean distance criterion).

The output of this analysis is fairly straightforward to interpret, and an example of this is given below:

HCA outputs: example, motivation segment 2 (Live for Today's), modelled against a specific health behaviour (X). The first number indicates the motivation cluster, the second indicates the IMD environment level.

### Live for Todays



In this example, the diagram is telling us which IMD groups within motivation segment 2 are the most similar in terms of health-related behaviour X. The closer to the left of the diagram they merge, the more similar they are. We can clearly see that IMD groups 2 and 3 are very similar, and that together they are similar to group 1. Groups 4, 5 and 6 are different to 1, 2 and 3. Therefore, if we explored only this one health behaviour, we would conclude that the most meaningful IMD grouping within motivation segment 2 is (1, 2 and 3) versus (4, 5 and 6). This process was repeated for all health behaviours within each segment.

On the basis of all the HCAs run across the health behaviours, we arrived at the final 11-segment solution (combining the motivation and IMD dimensions).

# Appendix 11: Lifestages

Lifestages were constructed based on those suggested by the Ingram hypothesis. The lifestages are based on a number of different elements:

- age;
- presence of children;
- presence of partner;
- whether have significant caring responsibilities; and
- working status (whether retired or not).

The following tables describe the variables that contribute to the lifestage categories, and their associated question numbers.

**Table A11.1: Lifestage definitions**

Category	Source
Discovery teens	Any respondent aged 12–15 (A1)
Freedom years under 25	Age 16–24 (A1) Have no partner in household (A8) and have never had a partner (G53) Have no children in the household (A8) and no children outside of the household (G52) Have no caring responsibilities (A10) Not retired (A9)
Freedom years 25 and over	Age 25+ (A1) Have no partner in household (A8) and have never had a partner (G53) Have no children in the household (A8) and no children outside of the household (G52) Have no caring responsibilities (A10) Not retired (A9)
Younger settlers	Age 16–44 (A1) With partner (A8) Have no children in the household (A8) Have no caring responsibilities (A10) Not retired (A9)
Older settlers	Age 45–64 (A1) With partner (A8) Have no children in the household (A8) Have no caring responsibilities (A10) Not retired (A9)

Category	Source
Younger jugglers	Age 16–44 (A1) Have children in household (A8) or have caring responsibilities (A10) Not retired (A9)
Older jugglers	Age 45–64 (A1) Have children in household (A8) or have caring responsibilities (A10) Not retired (A9)
Alone agains	Age 18+ (A1) Have no partner in household (A8) Have no children in household (A8) Have no caring responsibilities (A10) Not retired (A9) Have had a partner in the past (G54) or have children outside of the household (G52)
Active retirement with partner	Retired (A9) With partner (A8)
Active retirement without partner	Retired (A9) Have no partner in household (A8)

# Appendix 12: Unit Scores

**Table A12.1: Unit value for different types of drinks**

Type of drink	Units of alcohol
Pints or bottles of normal-strength beer, bitter, lager or cider	2.0
Pints or bottles of extra-strong beer, bitter, lager or cider	3.5
Glasses of wine	2.0
Glasses of Martini, sherry or port (not wine)	1.0
Single measures of spirits or liqueur such as whisky, gin, vodka, etc.	1.0
Bottles of designer drinks or alcoholic lemonade such as Castaway, Red, Reef, Hooch, Bacardi Breezer, Smirnoff Ice, etc.	1.5

# Appendix 13: Standardisation and Centring of Respondents

There are two forms of 'standardisation' that can take place for variables prior to segmentation. One is variable standardisation. This is a simple numerical conversion which means that each variable (be it a factor, a construct or a single statement) has the same level of variation (measured by its standard deviation) as all the others. The benefit of this is that it gives each input an equal and fair chance of influencing the segmentation. Without this, inputs with greater 'natural' variation will, by definition, have a stronger impact on the segmentation. For instance, if height were an input, then simply by changing units from metres, say, to centimetres would give it an 'unfair' advantage, as the numbers will show much greater variation. To standardise a variable, we simply deduct the overall mean from each observation and divide by the overall standard deviation. This way, each variable, no matter what its original distribution and which units are used, will have a mean of zero and a standard deviation of one. (Note, standardisation does not mean every input will have an equal impact on the segmentation, merely that each variable is given a 'fair chance' of making an impact.) In all the segmentation models used, the input variables were standardised.

The other type of standardisation that can be used, and was used for some of the input segmentations, is respondent centring. Respondent centring is a way of negating the effect of different respondents who have a tendency to use different parts of the scale for attitudinal questions. Respondent centring is done by deducting the respondent score for each question from the overall mean for that respondent. (Note, it is necessary for all the questions to be on the same scale, otherwise this won't work. In this instance, it was done separately for all questions on a five-point scale and again for questions on a seven-point scale.) This results in transformed scores whose mean is zero for each respondent. This approach is not universally used, as it can disguise genuine differences between respondents, which we are assuming to be a function of their propensity to answer at different points of the scale. However, it is a widely used approach and was initially applied in the segmentation process to give an alternative solution, as there was a concern that the solution comprising the uncentred respondents was being affected by a group of respondents who were inclined to use one end of the scale. (As well as cultural differences, older and younger groups can also use different parts of the scale.)

# Appendix 14: Poly-behaviours by Deprivation within Motivation

**Table A14.1: Fruit/vegetable consumption, alcohol consumption and physical activity**

Combinations of health behaviours: fruit/vegetable consumption, alcohol consumption and physical activity by deprivation within motivation segment (%)													
Negative health behaviour			Deprivation within motivation segment										
			Hedonistic Immortals		Live for Todays		Unconfident Fatalists			Health conscious Realists		Balanced Compensators	
Fruit/vegetables	Physical activity	Alcohol consumption	Least deprived	Most deprived	Least deprived	Most deprived	Least deprived	Mid deprived	Most deprived	Least deprived	Most deprived	Least deprived	Most deprived
Y	Y	Y	12	7	12	11	12	10	11	10	9	9	8
Y	Y	N	24	30	32	38	31	35	48	21	29	22	38
Y	N	Y	4	8	8	7	2	6	5	4	4	3	4
N	Y	Y	8	7	6	3	11	3	1	9	5	10	4
Y	N	N	9	14	14	17	8	14	14	9	14	11	20
N	Y	N	22	17	17	12	21	20	14	25	21	21	16
N	N	Y	5	6	2	4	3	6	2	6	5	8	3
N	N	N	16	11	9	9	12	7	6	16	12	16	8
Weighted base			593	257	620	502	225	439	105	430	539	467	312
Unweighted base			307	290	356	866	139	313	528	248	618	277	487

Table A14.2: Alcohol consumption, smoking and cannabis

Combinations of health behaviours: alcohol consumption, smoking and cannabis by deprivation within motivation segment (%)													
Negative health behaviour			Deprivation within motivation segment										
			Hedonistic Immortals		Live for Todays		Unconfident Fatalists			Health conscious Realists		Balanced Compensators	
Smoke	Alcohol consumption	Used cannabis	Least deprived	Most deprived	Least deprived	Most deprived	Least deprived	Mid deprived	Most deprived	Least deprived	Most deprived	Least deprived	Most deprived
Y	Y	Y	1	4	2	2	0	1	4	0	1	1	0
Y	Y	N	5	6	8	11	5	8	6	1	6	3	5
Y	N	Y	2	3	3	3	1	3	6	0	2	1	2
N	Y	Y	2	2	0	1	0	3	1	0	1	1	2
Y	N	N	6	13	14	23	11	18	32	5	14	8	14
N	Y	N	22	15	18	11	22	13	7	28	16	25	12
N	N	Y	3	3	0	2	2	1	1	0	1	0	2
N	N	N	59	53	55	47	59	54	44	66	60	61	63
Weighted base			590	258	602	495	223	425	105	417	538	463	312
Unweighted base			305	290	346	860	140	305	524	238	610	273	486

**Table A14.3: Fruit/vegetable consumption, physical activity, alcohol consumption and smoking**

Combinations of health behaviours: fruit/vegetable consumption, physical activity, alcohol consumption and smoking by deprivation within motivation segment (%)													
Negative health behaviour			Deprivation within motivation segment										
			Hedonistic Immortals		Live for Todays		Unconfident Fatalists			Health conscious Realists		Balanced Compensators	
Fruit/vegetables AND physical activity	Alcohol consumption	Smoke	Least deprived	Most deprived	Least deprived	Most deprived	Least deprived	Mid deprived	Most deprived	Least deprived	Most deprived	Least deprived	Most deprived
Y	Y	Y	3	2	4	6	2	3	7	0	3	0	2
Y	Y	N	9	5	8	5	8	7	3	10	6	8	6
Y	N	Y	3	7	8	14	4	11	23	1	8	4	5
N	Y	Y	3	8	6	7	2	6	3	1	3	4	4
Y	N	N	21	23	24	23	28	25	27	20	21	18	32
N	Y	N	14	13	11	6	13	9	4	18	11	18	8
N	N	Y	4	9	9	12	8	10	16	3	7	5	11
N	N	N	42	34	31	26	35	30	19	46	40	43	33
Weighted base			584	256	598	489	220	423	102	416	533	459	311
Unweighted base			302	286	343	845	137	304	517	237	605	271	483

# Appendix 15: The Allocation Questionnaires

## 15.1 The 19-item questionnaire and allocation algorithm

Note: The numbers next to the answers (e.g. '1' next to 'Disagree strongly' at Q1) indicate the coding for input into the questionnaire. They should not be shown on cards or printed questionnaires.

Q1 I am going to read out some things that other people have said. Please tell me how much you agree or disagree with each one.

### SHOW CARD 1

1 = Disagree strongly

2 = Disagree

3 = Disagree slightly

4 = Neither agree nor disagree

5 = Agree slightly

6 = Agree

7 = Agree strongly

Don't know

- I feel good about myself
- I get a lot of pleasure from taking risks
- I generally focus on the here and now rather than worry about the future
- I learn from my mistakes

Q2 I am going to read out some things that other people have said they would like to have or do over the course of their lives. Could you tell me how important each one is to you personally. Please take your answer from this card.

### ROTATE ORDER OF PRESENTATION

### SHOW CARD 2

- To have money, wealth and possessions
- To have an image that others find appealing

7 = Very important

6

5

4

3

2

1 = Not at all important

Don't know

**Q3** How much do you agree or disagree with these things?

ROTATE ORDER OF PRESENTATION

SHOW CARD 3

1 = Disagree strongly

2 = Disagree

3 = Disagree slightly

4 = Neither agree nor disagree

5 = Agree slightly

6 = Agree

7 = Agree strongly

Don't know

- Following a healthy lifestyle is an effective way to reduce my chances of becoming ill
- If you don't have your health, you don't have anything
- There is nothing more important than good health
- I'm very involved in my health
- I am in control of my own health
- The main thing which affects my health is what I personally do
- If a person is meant to get ill, it doesn't matter what a doctor tells them to do, they will get ill anyway
- I **intend to** lead a healthy lifestyle over the next 12 months

**Q4** For you, would leading a healthy lifestyle be...

SHOW CARD 4

1 = Extremely difficult

2

3

4

5

6

7 = Extremely easy

Don't know

**Q5** How much control do you believe you have over whether or not you lead a healthy lifestyle over the following year?

SHOW CARD 5

1 = No control

2

3

4

5

6

7 = Complete control

Don't know

Q6 For you, would leading a healthy lifestyle be.....

SHOW CARD 6

1 = Not enjoyable

2

3

4

5

6

7 = Enjoyable

Don't know

Q7 And still thinking about your own lifestyle at the moment, which of the statements on this card best describes your view?

SHOW CARD 7

If I don't lead a healthy lifestyle, my health could be at risk...

5 = In the next 12 months

4 = In the next few years

3 = In the next 10–20 years

2 = Much later in my life

1 = Not at all

Don't know

Prefer not to answer

Q8 Compared with other people of your age, how likely do you think it is that you will get seriously ill at some point over the next few years?

SHOW CARD 8

5 = I am much more likely to get seriously ill than other people of my age

4 = I am a little more likely

3 = No more or less likely

2 = I am a little less likely

1 = I am much less likely to get seriously ill than other people of my age

Not applicable/Already have a serious illness

Don't know

**The 19-question item allocation model (88% accuracy)**

1. Code responses to each question as described in the grid below.
2. Use the grid below to obtain a score for each segment. For each respondent and each segment (i.e. each column) in turn, multiply each response code by the respective coefficient. Add all these products together. Then add the constant to this number to obtain a score for each respondent for each segment.
3. The respondent is then allocated to the segment which has the **highest** score  
(Cluster 1 = Hedonistic Immortals; Cluster 2 = Live for Today's; Cluster 3 = Unconfident Fatalists; Cluster 4 = Health-conscious Realists; Cluster 5 = Balanced Compensators).

An allocation spreadsheet has been developed and is available from the Department of Health website. Feed the responses to each of the questions into the spreadsheet and the segment allocation is calculated for you.

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
(Q1) I feel good about myself 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	3.0054	2.9373	2.1103	2.9960	2.8211
(Q1) I get a lot of pleasure from taking risks 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	0.9756	0.7416	0.6647	0.4300	0.7260
(Q1) I generally focus on the here and now rather than worry about the future 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	0.3880	0.8898	0.6723	0.0462	0.4494

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
(Q1) I learn from my mistakes 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	6.9780	6.7493	4.8281	6.7917	7.1311
(Q2) Could you tell me how important the following is to you personally: to have money, wealth and possessions 1 = Not at all important 2 3 4 5 6 7 = Very important	1.3387	1.5221	1.6213	1.1826	1.7175
(Q2) Could you tell me how important the following is to you personally: to have an image that others find appealing 1 = Not at all important 2 3 4 5 6 7 = Very important	0.5705	0.4362	0.3680	0.1444	0.6200
(Q3) Following a healthy lifestyle is an effective way to reduce my chances of becoming ill 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	3.9102	3.3240	3.3488	3.7575	3.7178

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
(Q3) If you don't have your health, you don't have anything 1 = Disagree Strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	-0.0053	1.3511	1.3329	1.6369	1.5452
(Q3) There is nothing more important than good health 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	-0.2029	0.9837	1.1286	1.1017	1.0732
(Q3) I'm very involved in my health 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	0.4232	0.2637	0.6409	0.5659	0.7349
(Q3) I am in control of my own health 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	1.2251	1.0090	0.3294	0.9939	0.9553

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
(Q3) The main thing which affects my health is what I personally do 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	2.0940	2.0776	1.6065	2.1340	2.1522
(Q3) If a person is meant to get ill, it doesn't matter what a doctor tells them to do, they will get ill anyway 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	0.1762	1.1370	0.6954	0.0507	0.5696
(Q3) I <b>intend to</b> lead a healthy lifestyle over the next 12 months 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	4.3811	3.6399	4.0125	4.3116	4.3971
(Q4) For you, would leading a healthy lifestyle be... 1 = Extremely difficult 2 3 4 5 6 7 = Extremely easy	1.2142	0.9830	0.6126	1.2246	1.0701

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
(Q5) How much control do you believe you have over whether or not you lead a healthy lifestyle over the following year? 1 = No control 2 3 4 5 6 7 = Complete control	2.6680	2.5149	2.2773	2.7067	2.7283
(Q6) For you, would leading a healthy lifestyle be... 1 = Not enjoyable 2 3 4 5 6 7 = Enjoyable	0.8041	0.3567	0.8252	1.0223	1.0085
(Q7) If I don't lead a healthy lifestyle, my health could be at risk... 5 = In the next 12 months 4 = In the next few years 3 = In the next 10–20 years 2 = Much later in my life 1 = Not at all	1.9662	1.4627	3.0454	2.4288	0.7983
(Q8) Compared with other people of your age, how likely do you think it is that you will get seriously ill at some point over the next few years? 5 = I am much more likely to get seriously ill than other people of my age 4 = I am a little more likely 3 = No more or less likely 2 = I am a little less likely 1 = I am much less likely to get seriously ill than other people of my age	5.6337	5.3904	6.5177	5.4566	3.2765
Constant	−97.6558	−95.9594	−86.4225	−105.0422	−104.4905

## 15.2 The 6-item questionnaire and allocation algorithm

Note: The numbers next to the answers (e.g. '1' next to 'Disagree strongly' at Q1) indicate the coding for input into the questionnaire. They should not be shown on cards or printed questionnaires.

Q1 I am going to read out some things that people have said. Please could you tell me how much you agree or disagree with each one.

### SHOW CARD 1

1 = Disagree strongly

2 = Disagree

3 = Disagree slightly

4 = Neither agree nor disagree

5 = Agree slightly

6 = Agree

7 = Agree strongly

Don't know

- I learn from my mistakes – THIS ALWAYS COMES FIRST, OTHER THREE ROTATE
- If you don't have your health you don't have anything
- There is nothing more important than good health
- If a person is meant to get ill, it doesn't matter what a doctor tells them to do, they will get ill anyway

Q2 People think differently about their health and how it might change in the future, and the next question is about that subject. Compared with other people of your age, how likely do you think it is that you will get seriously ill at some point over the next few years?

### SHOW CARD 2

5 = I am much more likely to get seriously ill than other people of my age

4 = I am a little more likely

3 = No more or less likely

2 = I am a little less likely

1 = I am much less likely to get seriously ill than other people of my age

Not applicable/Already have a serious illness

Don't know

Q3 And still thinking about your own lifestyle at the moment, which of the statements on this card best describes your view?  
If I don't lead a healthy lifestyle, my health could be at risk...

SHOW CARD 3

5 = In the next 12 months

4 = In the next few years

3 = In the next 10–20 years

2 = Much later in my life

1 = Not at all

Don't know

Prefer not to answer

### The 6-question item allocation model (67% accuracy)

1. Code responses to each question as described in the grid below.
2. Use the grid below to obtain a score for each segment. For each respondent and each segment (i.e. each column) in turn, multiply each response code by the respective coefficient. Add all these products together. Then add the constant to this number to obtain a score for each respondent for each segment.
3. The respondent is then allocated to the segment which has the **highest** score.

An allocation spreadsheet has been developed and is available from the Department of Health website. Feed the responses to each of the questions into the spreadsheet and the segment allocation is calculated for you.

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
(Q1) I learn from my mistakes 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	8.0975	8.0163	6.5261	8.0475	8.3603
(Q1) If you don't have your health you don't have anything 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	1.2754	2.5556	2.3325	2.7361	2.7461
(Q1) There is nothing more important than good health 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	2.1545	3.1711	3.2080	3.3574	3.5057

	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
(Q1) If a person is meant to get ill, it doesn't matter what a doctor tells them to do, they will get ill anyway 1 = Disagree strongly 2 = Disagree 3 = Disagree slightly 4 = Neither agree nor disagree 5 = Agree slightly 6 = Agree 7 = Agree strongly	1.0131	1.8549	1.4578	0.9104	1.3904
(Q2) Compared with other people, how likely do you think it is that you will get seriously ill over the next few years? 5 = I am much more likely to get seriously ill than other people 4 = I am a little more likely 3 = No more or less likely 2 = I am a little less likely 1 = I am much less likely to get seriously ill than other people	7.2353	7.2275	5.8584	7.3693	9.3918
(Q3) If I don't lead a healthy lifestyle, my health could be at risk... 5 = In the next 12 months 4 = In the next few years 3 = In the next 10–20 years 2 = Much later in my life 1 = Not at all	5.6543	6.3751	4.9042	5.3105	6.8069
Constant	-51.8623	-66.2656	-48.3473	-63.1987	-79.1493



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