

Exploring potential reasons for Glasgow's 'excess' mortality:

Results of a three-city survey of Glasgow, Liverpool and Manchester

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Preface

This report is one of a number emanating from a programme of research exploring the issue of 'excess' mortality in Scotland, and in particular parts of Scotland. It should be read in the context of the other, ongoing research into this phenomenon.

This 'excess' is defined as the higher levels of mortality experienced in Scotland compared with other parts of the UK **over and above that** explained by socioeconomic deprivation. As such, this research does not seek alternative explanations to poverty and deprivation as the driving forces of poor health. The links between deprivation and health are profound, well researched and beyond dispute: the three cities that are the focus for the research described in this and other reports – Glasgow, Liverpool and Manchester – have the lowest life expectancy of any UK city *because* they have the highest levels of deprivation of any UK city. Rather, this research seeks to identify what **additional** factors might explain the considerably higher ('excess') mortality seen in Glasgow compared with these two similarly deprived English cities and, by extension, that seen in all other parts of Scotland compared with England and Wales *after taking into account* differences in levels of poverty.

This document describes the collection and analysis of new data for a number of theories that have been proposed to explain this additional mortality. Further hypotheses are being examined in other research projects. A report synthesising the results of all these research elements will be published by the Glasgow Centre for Population Health and NHS Health Scotland in late 2013/early 2014.

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Executive summary

Executive summary

Previous research has suggested that the higher levels of mortality recorded in Scotland compared with other parts of the UK cannot be explained entirely in terms of poverty and socioeconomic deprivation alone. Premature mortality (under 65 years) in Glasgow has been shown to be 30% higher than in the identically deprived UK cities of Liverpool and Manchester, with deaths at all ages almost 15% higher. This ‘excess’ has been shown for all adult age groups, both sexes and across different neighbourhood types (deprived and non-deprived).

A number of hypotheses have been proposed to explain the additional levels of mortality; however, in many cases, assessment of the plausibility of these theories has been hindered by a lack of comparable data. To address this situation a programme of research has been established to collect new data and examine some of these suggested explanations in more detail. This work does **not** question the importance of deprivation in explaining poor health in cities such as Glasgow, Liverpool and Manchester (the cities with the highest levels of deprivation in the UK and, therefore, with the lowest life expectancies); rather, it seeks to analyse reasons for the *additional* ‘excess’ mortality seen in Scotland and, especially, parts of Scotland such as its largest city.

A cross-sectional survey of the populations of Glasgow, Liverpool and Manchester was carried out in the latter half of 2011. Data for seven sets of hypotheses were collected from 3,700 respondents across the three locations (just over 1,200 in each). A 55% response rate was achieved. The seven questions (some overlapping) that analyses of these new data sought to explore were:

- Is there a lower ‘sense of coherence’ among Glasgow’s population?
- Is social capital lower in Glasgow than in the other cities?
- Has Glasgow’s poor health been influenced by the effects of historical UK government policy (the ‘political attack’ or ‘political effects’ thesis)?
- Is Glasgow’s population characterised by different individual ‘values’ (e.g. psychological outlook (optimism, aspirations), hedonism, individualism, future orientation (or ‘time preferences’ – the extent to which individuals are willing to ‘invest’ in their future health) compared with the populations of Liverpool and Manchester?
- Is social mobility lower in Glasgow?
- Is there evidence of a form of ‘anomie’ (or ‘boundlessness and alienation’) among Glasgow’s population?
- Is Glasgow’s health profile influenced by adverse early years’ experiences compared with the other cities’ populations?

Wherever possible, previously validated survey questions and scales were used to collect the data.

The samples were shown to be broadly representative of the cities' populations, although (as with many surveys of this type) the unemployed and some sections of the economically inactive population were over-represented; this was especially true of the Manchester sample. However, multivariate regression modelling analyses were employed to ensure that any observed differences between the cities were independent of differences in the characteristics of the survey samples (age, gender, social class, ethnicity, area deprivation and so on).

There are obvious limitations in using contemporary cross-sectional survey data to explore hypotheses relating to mortality differentials between whole populations, and we must be cautious in drawing conclusions. However, from analyses of these new data, and in the context of previous relevant research, it seems reasonable to categorise the hypotheses under three headings: plausible; less plausible; and still unknown. It appears *plausible* that there are differences in some aspects of social capital (trust and reciprocity, and social participation) between Glasgow and the two English cities which could potentially impact on levels of health and wellbeing in the population: differences between the samples in social participation (e.g. volunteering), trust and reciprocity are clear and consistent, and are supported by analyses of related 'values' such as individualism and benevolence. However, it appears *less plausible* that Glasgow's population suffers from a lower 'sense of coherence' (shown to be significantly higher among the Glasgow sample compared with the samples from both English cities), from the effects of different childhood experiences, or that the population is more associated with other particular 'values' that might have adverse impacts on health, such as psychological outlook, hedonism, and future orientation ('time preferences') (although there is some evidence that Glasgow's population may be more risk-seeking). It is probably *still unknown* whether the 'anomie' hypothesis holds true: the data presented here suggest it is unlikely, but whether this kind of population survey is the best means by which to examine the hypothesis is unclear; similarly, it is probably fair to say that data weaknesses impair our ability to assess the evidence of the impact of political effects (albeit some evidence of more negative perceptions of the 1980s did emerge from the Glasgow sample), differences in social mobility, and higher levels of materialism. Further research is required to clarify the importance of some of these factors.

What remains beyond doubt and speculation is the sheer scale of the 'excess' level of mortality and poor health in Glasgow (and other parts of Scotland) compared with elsewhere in the UK, the impact that it has on individuals and communities alike in terms of shortened and wasted lives, and the urgent need, therefore, to understand and address this situation – the ultimate aim of this continuing programme of research. This, however, must be alongside, not in place of, efforts to reduce poverty and deprivation, the fundamental drivers of poor health in any society.

Introduction

1. Introduction

Background – ‘excess’ mortality in Scotland and Glasgow

The poor health profile of Scotland, and particularly that of its largest city, Glasgow, has been much documented. Traditional explanations have focused on the effects of socioeconomic deprivation, driven in recent decades by post-industrial decline. Both these explanations are tremendously important: the links between poverty and poor health are well known, and the high levels of deprivation in and around Glasgow in particular are well established¹⁻⁷. Across Europe, mortality tends to be highest in deindustrialised regions^{8,9}.

However, despite their importance, these explanations do not appear to be *sufficient* to explain the *particularly* poor health profile of Scotland as a whole, and that of Glasgow and its surrounding post-industrial region in particular. Scotland’s mortality rates are significantly higher than those of England and Wales, even once differences in deprivation have been taken into account¹⁰⁻¹³. This ‘unexplained’ gap (the ‘excess’ mortality) between the countries is increasing over time, and although the ‘excess’ has been shown to be ubiquitous in Scotland, it is most concentrated in and around Glasgow^{2,10,14,15}. Health in virtually all post-industrial regions of Eastern and Western Europe is better, and improving faster, than in West Central Scotland (WCS): this includes regions in the UK such as the Welsh ex-coalfield areas and Merseyside, areas with similar levels of poverty and economic histories as WCS in recent decades^{8,9}. Most strikingly of all, research published in 2010 showed the deprivation profiles of Glasgow, Liverpool and Manchester to be virtually identical: yet despite this, and after adjusting for any remaining differences in deprivation between the cities, premature mortality in Glasgow was shown to be 30% higher than in the English cities, with deaths at all ages around 15% higher^{16,17}.

This ‘excess’ mortality in Glasgow (compared with Liverpool and Manchester) is seen among both males and females, in all age groups except children (among whom deaths remain a mercifully rare event), and, importantly, across the entire social spectrum: mortality is higher in comparisons of Glasgow’s deprived areas with those of Liverpool and Manchester, but also in comparison of non-deprived areas. That said, although for deaths at all ages the ‘excess’ is similar across all neighbourhood types, for premature deaths it tends to be greater in comparisons of the more, rather than less, deprived areas¹⁶. This could be because one set of factors explain the ubiquitously higher mortality rate and another, separate set, impact on the most deprived communities; or because the explanatory factors have differential impacts across the social spectrum.

Previous analyses suggest that the ‘excess’ cannot be explained in terms of the population composition of the cities (for example their age structures or ethnic profiles), by historical changes in deprivation, nor by examination of a broad range of data related to health and

its determinants¹⁷. Indeed, there are remarkable similarities between the cities in so many important areas. For example, comparisons of Glasgow and Liverpool (or, where requiredⁱ, the wider regions of West Central Scotland and Merseyside) show strikingly similar levels of: income inequalities; adult poverty; child poverty; deprivation; educational attainment; other indicators of the so-called ‘social environment’ (e.g. lone parent households, teenage pregnancies); health behaviours (smoking, diet, obesityⁱⁱ) and more. On one level, this is unsurprising: as UK post-industrial cities, all three places share a number of historical and cultural characteristics. Furthermore, factors such as health behaviours, education, vulnerable households and so on, are closely related to the socioeconomic environment in which people live, and with the cities exhibiting near identical deprivation profiles, we would therefore expect similar characteristics in these terms. On another level, however, it raises a perplexing question: with such similarities evident between all three populations, why is Glasgow’s mortality profile so strikingly different?

Theories, explanations, speculation...

There has been no shortage of suggested explanations for this phenomenon. A considerable number of theories have been proposed to explain Scotland’s ‘excess’ poor health compared with England and Wales, and publication in 2010 of the results of the analyses of deprivation and mortality in Glasgow, Liverpool and Manchester provoked many more¹⁸⁻²³. In an attempt to take this forward, a report published in 2011 sought to summarise these many theories, and to assess each in terms of its plausibility^{24,25}. A total of 17 such hypotheses were considered. These were grouped into ‘upstream’ (for example political experiences, climatic differences), ‘midstream’ (e.g. lower social capital, sectarianism) and ‘downstream’ (e.g. health behaviours, individual ‘values’) explanations, alongside additional theories relating to artefact (e.g. how deprivation is measured) and genetics. The results of this research were important and helpful: first, it emphasised the obvious point that no single cause is likely to explain the ‘excess’ levels of mortality seen in Glasgow and Scotland – rather, it is likely to be a complex combination of a whole suite of different, possibly interacting, factors; and second, it highlighted evidence to suggest that a number of theories were unlikely to be playing a significant role (these included migration and sectarianism, for example). However, although a number of other potential explanations were deemed as ‘plausible’, no data or evidence were available by which these hypotheses could be tested. To address this, a programme of research was established to investigate some of these more plausible hypotheses²⁶. Although relevant to the issue of ‘excess’ mortality in Scotland as a whole, for reasons already alluded to the research is focusing on Glasgow and the comparator cities of Liverpool and Manchester. The results of one component of this programme are described in this report.

ⁱ For example, for comparisons of income inequalities, which are more sensibly made at the regional, rather than at the city level.

ⁱⁱ It should be noted that previous research has, however, shown much higher rates of alcohol- and drug-related mortality in Glasgow compared with Liverpool and Manchester. However, the reasons for this (the ‘causes of the causes’) are unclear, given the similar socioeconomic profiles of the cities, and are the subject of ongoing research.

Aims and research questions

2. Aims and research questions

The aims of the research reported here were as follows:

1. To carry out a representative survey of the populations of Glasgow, Liverpool and Manchester to collect new data relating to some of the more plausible hypotheses put forward to explain Glasgow's 'excess' mortality.
2. Wherever possible, to use previously validated survey questions and scales to collect the data; and where no such scales or questions existed, to develop new questions by which data could be collected.
3. To undertake detailed analyses of the new data to answer the following **high-level research questions**:
 - a. Are there any significantⁱⁱⁱ differences between the cities (and, in particular, between Glasgow and the two English cities) for any of the collected measures?
 - b. Do these differences remain significant after adjusting for various characteristics of the samples?
 - c. Are differences evident across sub-groups (age, gender, social class and so on) of the cities' samples?
 - d. Where differences between Glasgow and the other cities are identified, with what characteristics of the Glasgow sample are they most associated?
4. Where any differences are identified, to assess their potential importance, and to identify further research required to quantify their impact.

ⁱⁱⁱ For simplicity and readability, this report uses the term 'significant' to describe differences between values that appear meaningful in a statistical sense i.e. where results from statistical modelling are associated with a p value of less than 0.05, or – more simplistically – where two sets of 95% confidence intervals around mean values or percentages do not overlap. However, as many statisticians would point out, the latter does not always imply statistical significance; furthermore, and more fundamentally, some commentators have argued strongly that the 'arbitrary division of results' into 'significant' and 'non-significant' on the basis of p values is unhelpful, and instead significance 'should be interpreted in the context of the type of study and other available evidence'²⁷. However, all the results presented in this report are ultimately assessed and interpreted in terms of the results of *all* the analyses relevant to the various hypotheses, rather than individual p values or percentages from single comparisons of values.

Hypotheses under investigation

3. Hypotheses under investigation

The data that were collected in the survey relate to seven sets of hypotheses. As stated previously, this survey is only one of a number of components in an overall research programme: therefore, other hypotheses not discussed here may be the focus of other projects.

The questions we sought to address through analyses of the newly collected data were:

- **Is there a lower ‘sense of coherence’ among Glasgow’s population?** As discussed in greater detail later in the report, Antonovsky’s concept of a ‘sense of coherence’ (SoC)^{28,29} relates to the extent to which individuals are ‘resilient’ to the impact of stress on their health and wellbeing. It has three components – comprehensibility, manageability and meaningfulness (of life) – and has been shown in the research literature to be significantly and independently associated with a number of health outcomes (particularly mental health). It has been hypothesised by some that a lower sense of coherence among Glasgow’s population might explain aspects of its poorer mortality profile³⁰. As with some of the other hypotheses discussed in this report, elements of this overlap with other proposed theories: for example, the ‘meaningfulness’ component of the SoC scale used in this survey has also been used as a measure of people having ‘purpose in life’, or caring about what happens – which links to the hypotheses around psychological outlook, as well as the notion of ‘anomie’ (both discussed further below).
- **Is social capital lower in Glasgow than in the other cities?** Social capital (related to the idea of social connectedness, and the value of social networks) is a complex topic, involving a number of different components and which, therefore, has been defined and measured in a number of different ways. However, there is a considerable amount of evidence linking social capital to health outcomes. If, therefore, there were differences in aspects of social capital between Glasgow and the English cities, that would be potentially important. To the authors’ knowledge, no comparable data on social capital have ever been collected for these three cities.
- **Has Glasgow’s poor health been influenced by the effects of historical UK government policy (the ‘political attack’ or ‘political effects’ thesis)^{iv}?** The question here is whether neoliberal policies adopted in the UK from 1979 onwards have had a detrimental effect on the health and wellbeing of the city’s population, and more so than in Liverpool and Manchester (due to greater vulnerability to their effects among Glasgow’s population). The survey attempted to ask questions specifically about this; however, in addition the topic was expanded to include more general questions about perceptions and engagement with current local and national

^{iv} ‘Political attack’ is a term that has been used to describe the particular actions of the Conservative governments under Margaret Thatcher (1979-1990) and John Major (1990-1997). In this report we use the broader term ‘political effects’ to embrace both this element, as well as the wider impact of other UK and local government policies.

governments: to a degree, therefore, it links further with elements of the ‘social capital’ hypothesis above.

- **Is Glasgow’s population characterised by different individual ‘values’ compared with those in Liverpool and Manchester?** It has been suggested that differences in such ‘values’ would influence health behaviours and choices and, therefore, ultimately health outcomes. This embraces a number of overlapping concepts:
 - Psychological outlook: for example, are optimism and hope for the future lower among Glasgow’s population? Do Glaswegians have lower aspirations than residents of the other UK cities?
 - Hedonism: is there a more hedonistic culture in Glasgow?
 - Are time and risk ‘preferences’ different in Glasgow? That is, are Glaswegians more ‘present-oriented’, placing relatively less value on future outcomes, and are more risk-seeking? Time and risk preferences are key economic concepts which are related to individuals’ ‘investments’ in their future health³¹⁻³⁴.
 - Are Glaswegians more individualistic and/or materialistic than those in the other cities?
- **Is social mobility lower in Glasgow?** It has been proposed that social mobility may be lower in the Scottish city than in the two English cities, resulting in relatively poorer health (given that health status is known to increase across the social gradient). It has been suggested that this is influenced by cultural factors, being brought about by both a lack of self-confidence (the roots of which lie in the influence of Scottish Calvinism), and also a culture of ‘social-control’ which discourages people from being seen to do better than their peers^{35,36}.
- **Is there evidence of ‘anomie’ among Glasgow’s population?** ‘Anomie’ is a concept first proposed by Durkheim^{37,38} in the late 19th century to describe a breakdown or lack of social values or norms that can occur particularly at times of economic instability and social change, and which can result in greater risk-taking and self-destructive behaviours (e.g. alcohol misuse, drugs misuse, suicide). When considered as an explanation for Scotland’s ‘excess’ mortality in the 2011 ‘hypotheses’ report, this concept was described in terms of a more general heading of a ‘culture of boundlessness and alienation’ to distinguish it from the ‘underclass’ theory with which anomie has become associated³⁹⁻⁴². The concept arguably has parallels with the ‘culture of poverty’ thesis proposed by Murray and others which suggests that poverty is not so much a causal factor in generating social problems, but instead that social problems are a result of cultures endemic within the poorest groups in society^{41,43}.
- **Is Glasgow’s health profile influenced by more adverse early years’ experiences compared with the other cities’ populations?** This hypothesis has been the focus for a separate research project, now published by the GCPH⁴⁴. As an accompaniment, a small number of questions about early years (perception of childhood, relationship with parents) were included in the survey.

All these hypotheses are discussed in more detail in later sections of the report. The different scales and questions used to capture these hypotheses are, alongside other methodological details of the project, described fully in the next section.

Methods

4. Methods

This section briefly outlines the main methodologies employed in the project. Where required (e.g. regarding aspects of the survey design or the statistical modelling analyses), further details are included within relevant appendices of this report.

There are five topics covered here: questionnaire design; ethical approval; survey design and implementation; comparisons with other data; and statistical analyses.

Questionnaire design

A review of existing survey questions and scales was undertaken to identify the best means of capturing the various hypotheses listed in the previous section. Wherever possible, the aim was to use previously validated question sets and scales. Where this was not possible (for example for the ‘political effects’ hypotheses), new questions were created: these were developed by means of ‘cognitive testing’⁴⁵ and piloting to ensure that the understanding and sense of the questions was universal and that the collected data were likely to be reliable.

The questionnaire was piloted in all three cities prior to implementation.

Table 1 lists the scales/question sets used and the hypotheses to which they relate. In some cases, an entire scale captured the principal element of the hypothesis directly – for example, the Sense of Coherence (SoC) scale, or the Life Orientation Test (a measure of optimism). In other cases, particular questions within scales or question sets were relevant – for example questions within the SoC scale that were relevant to the ‘anomie’ hypothesis (outlined in Table 1). As mentioned in the previous section, some scales related to, or included questions that related to, different hypotheses.

Table 1. Survey questions/scales and associated hypotheses

Hypothesis	Questions/scales used in the survey
Lower sense of coherence	<ul style="list-style-type: none"> Antonovsky’s 13-item ‘Sense of Coherence’ scale (SOC-13)^{29,46} was used and is relevant to a number of different hypotheses being explored. The scale, and a brief summary of its uses in other literature, is discussed later in the report.
Lower social capital	<ul style="list-style-type: none"> An expanded version of the Office for National Statistics (ONS) core ‘Social Capital Harmonised Question Set’⁴⁷ was used, covering the five core areas of: views about the local area; civic participation; social networks and support; social participation; reciprocity and trust^v. Some of the questions included in the ‘political effects’ hypothesis (i.e. perception of ability to influence local and national decisions, and perceptions of and engagement with local and national government) are also relevant to the <i>civic participation</i> element of social capital. The notion of ‘religious’ social capital is also considered in this report: a modified version of the question on religious affiliation from the 2011 Scottish Census was used for this purpose. Schwartz’s 21-item Human Values Scale⁴⁸⁻⁵³ was used to measure a number of different ‘individual values’ (see below); however, some of these are also relevant to other hypotheses, including social capital: one of the ten ‘values’ in the scale is <i>benevolence</i>, which is relevant to the notions of both <i>social networks and support</i>, and <i>reciprocity and trust</i>^{vi}; the <i>universalism</i> value is also relevant.
Political effects	<ul style="list-style-type: none"> No existing questions were available to be used; thus, new questions were developed, covering perception of and engagement with current local and national governments, and (for respondents who lived through the 1980s) perceptions of the experiences and effects of the 1980s, and trust in 1980s political institutions and politicians.

^v The ‘core’ ONS questions were all included, as well as a selection of questions from the broader ONS set. However, we added a small number of questions from other surveys to collect further information on the five topic areas listed.

^{vi} The two questions that make up the benevolence value are (and for which respondents are asked to rate on a six-point scale the extent to which they are similar to the person described): 1) It is important to him/her to be loyal to his/her friends. He/she wants to devote himself/herself to people close to him; 2) It’s very important to him/her to help the people around him/her. He/she wants to care for their wellbeing.

Hypothesis	Questions/scales used in the survey
Different individual values	<ul style="list-style-type: none"> • Psychological outlook: <ul style="list-style-type: none"> ◦ Optimism was measured using the Life Orientation Test (Revised) (LOT-R)⁵⁴. ◦ <i>Achievement</i> is one of the ten values in Schwartz’s Human Values Scale⁴⁸, and is relevant to the hypothesis that aspirations may be lower among Glaswegians. ◦ As stated, the ‘meaningfulness’ component of Antonovsky’s ‘Sense of Coherence’ scale is also relevant to the hypothesis of different psychological outlook. ◦ The Generalised Self-Efficacy (GSE) scale⁵⁵ was included in the survey and is relevant to a number of hypotheses including psychological outlook (in terms of aspirations, optimism and motivations)^{vii}. • Hedonism: this is one of the ten values of Schwartz’s scale. • Time preferences were measured using questions involving trade-offs of days of ill-health over time. These questions were based on previous studies^{31,32}. Risk preferences were measured using a general risk question. The latter has been used in a number of surveys including Understanding Society (which incorporates the British Household Panel Survey)⁵⁷. • Individualism: the <i>universalism</i> value from Schwartz’s scale is relevant as, to a large degree, it represents the opposite of individualism (as stated above, this value is also relevant to the social capital hypothesis). In addition, a specific question on individualism was added to the end of Schwartz’s scale. • Materialism: one of the questions that makes up the <i>power</i> value in Schwartz’s scale is directly relevant, while an additional question on materialism was also added to the end of Schwartz’s scale.

^{vii} Self-efficacy (as measured by the Generalised Self-Efficacy (GSE) scale) has been defined as ‘the belief that one can perform a novel or difficult task, or cope with adversity – in various domains of human functioning’⁵⁶, and thus relates to the notion of having control over one’s environment and behaviour. The ten questions that make up the scale cut across a number of different hypotheses being explored in this project.

Hypothesis	Questions/scales used in the survey
Lower social mobility	<ul style="list-style-type: none"> The Generalised Self-Efficacy (GSE) scale⁵⁵ is directly relevant to both this hypothesis, and the notion of aspirations discussed above. Of course, this scale is a measure of individuals' beliefs in their ability to succeed (and is therefore linked to motivations): it clearly does not capture, nor is it intended to capture, whether individuals' actually have the resources (for example, financial or social) to do so. These and other issues are discussed later in the report. The <i>achievement</i> value of Schwartz's scale is also relevant to this hypothesis. As the social mobility hypothesis has been proposed partly in relation to the idea that there is a lack of self-confidence among Glaswegians^{24,35,36}, a question on self-esteem was also included in the survey^{viii}.
Anomie (boundlessness/alienation)	<ul style="list-style-type: none"> A number of questions within the Sense of Coherence scale are directly relevant to this hypothesis, as indeed is the entire scale itself and, especially, the questions that make up the 'meaningfulness' sub-scale^{ix}. The <i>conformity</i> value of Schwartz's scale is also relevant to this hypothesis: anomie relates to a breakdown or lack of social values or norms, while the <i>conformity</i> value captures respondents' perceptions of the importance of such social norms^x.
Different early years' experiences	<ul style="list-style-type: none"> As stated, this has been the subject of a very detailed separate research project⁴⁴. To support this, two simple questions on perceptions of childhood happiness and relationships with parents were added.

^{viii} There are also validated scales to measure self-esteem, for example the Rosenberg scale⁵⁸. The full scale was not included because of time and space limitations.

^{ix} The four questions that make up the 'meaningfulness' sub-scale relate to: whether or not the respondent cares about what goes on around them; whether their life has any clear goals or purpose; whether daily activities are a source of pleasure and satisfaction, or whether instead a source of pain and boredom; whether or not there is meaning in the things the respondent does in their daily life. Note that a full copy of the questionnaire is included in Appendix E.

^x The conformity value is derived from answers to these two questions (again for which respondents are asked to rate the extent to which they are similar to the person described): 1) He/she believes that people should do what they're told. He/she thinks people should follow rules at all times, even when no one is watching; 2) It is important to him/her always to behave properly. She wants to avoid doing anything people would say is wrong.

Exploring potential reasons for

Glasgow's 'excess' mortality

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Aside from those listed in Table 1, the survey also included questions on demographics (age, gender, housing tenure, length of residence, educational attainment, employment status, marital status, ethnicity and household income), health status (self-assessed health, limiting long-term illness) and smoking status (the latter included principally for inclusion in analyses of the Time Preferences questions). A full copy of the questionnaire is included in Appendix E.

Ethical approval

The survey was approved by the University of Glasgow Medical Faculty Ethics Committee^{xi} (project reference no. zFM06910). A copy of the approval letter is included in Appendix F.

Survey design and implementation

The survey was carried out by AECOM Social and Market Research⁵⁹. A full report by AECOM, detailing all the aspects of methodologies employed, is available from NHS Health Scotland's website⁶⁰. However, the most pertinent aspects of the survey design are as follows:

- The target sample size was 3,600 across the three cities (i.e. 1,200 in each): ultimately, a slightly larger sample size was obtained: 3,701 in total (1,288 in Glasgow, 1,202 in Liverpool and 1,211 in Manchester). This was achieved with an overall 55% response rate, ranging from 53% in Manchester to 58% in Glasgow (the rate for Liverpool was 55%), and from 53% in the least deprived areas of the three cities to 58% in the most deprived areas. Further details are included in the 'Results' section of this report.
- A stratified random probability sample design was employed. Survey samples can be drawn using a number of different methodologies, but this type of design is recognised as the best way of minimising bias and thereby obtaining the most representative sample⁶¹. Full details are available in AECOM's report⁶⁰, but briefly: the populations of each city were stratified into ten groups based on the same deprivation groupings used in the analyses of deprivation and mortality in the 2010 report (discussed in the Introduction)^{xii,16}, and within each decile in each city the required number of addresses were randomly selected from 24 'sampling points' (also randomly selected from within the decile)^{xiii}.

^{xi} The lead author of this report is an Honorary Senior Lecturer at the University of Glasgow; furthermore, aside from this report, analyses of the survey data are also being used as part of a PhD thesis to be submitted to the University of Glasgow.

^{xii} The measure of deprivation used was 'income deprivation'. This is the same measure used in the descriptive analyses and statistical modelling presented within this report. A detailed definition of this measure of deprivation is included within the 2010 report cited above.

^{xiii} Within each decile in each city, the 'sampling points' were 'output areas'. Output areas are smaller in Scotland than in England, so for Glasgow pairs of output areas were merged into a single sampling point. Twenty-four output areas (or merged output areas in Glasgow) were randomly sampled within each city, with ten addresses then randomly sampled in each output area. This, therefore, produced an initial selection of 2,400 households (10 (deciles) x 24 (output areas) x 10 (addresses)) in each city. Households were identified from the Postcode Address File (PAF)⁶².

- Face-to-face ‘in home’ household interviews^{xiv} were carried out between July and November 2011, using a combination of computer-assisted personal interviewing (CAPI) and computer-assisted self-complete interviewing (CASI) techniques, dependent on question sensitivity.
- The data were weighted by AECOM using standard methodologies to ensure they were as representative of the households and cities as possible. Weighting was performed to adjust for differential response by deprivation decile, and to ‘up-weight’ multiple households, large households, younger ages and men to adjust for the lower probability of sampling in the former two and the lower response rates in the latter two. Further details of this, as well as other issues relating to the survey design, are available from the AECOM report.

Comparisons with other data

As outlined briefly in the next section of the report (and in more detail in Appendix G), the completed survey data (received from AECOM in early 2012) were compared with a range of other survey and administrative data to assess reliability and representativeness. The optimal comparisons that could have been made would have been with the 2011 Census data: however, at the time of both analysing the data and reporting the results of the analyses, 2011 Census data were not available for all three cities. Thus, limited 2011 Census data were used alongside a range of other national survey data (for example the Annual Population Survey) as well as – where necessary – 2001 Census data.

In reporting the results of the analyses (especially those based on previously used and validated scales or questions), we additionally compare, where appropriate, with results from other relevant studies and surveys. This provides an additional means to assess whether the data in the present study display the same variation and ranges as have been found elsewhere. That said, however, such comparisons can be difficult, and in some cases potentially misleading and unhelpful, given the different population characteristics, socioeconomic conditions, sampling methodologies, sample sizes and response rates that may apply. The comparisons are therefore provided principally for reasons of context provision and reassurance, and not necessarily as a basis to draw inferences about the samples in relation to other populations.

^{xiv} In a single person household an interview was attempted with that person; where two or more individuals were resident, the person whose birthday was next was selected for interview. More details of this, as well as of the random selection of households within single properties, numbers of call-backs made by interviewers, pre-interview letters, and more, are described in the AECOM report.

Statistical analyses

Detailed comparisons were made between, and within, the cities for the data collected in the survey. To ensure any differences between cities were not simply the result of differences in the characteristics of the sample (e.g. age, gender, social class/social grade^{xv}), all the main questionnaire topics were analysed by means of a series of multivariate regression models. Full details are included in Appendix B, but briefly: the ‘outcome’ (or dependent variable) in each model was the particular questionnaire topic (for example, each respondent’s score in the Sense of Coherence scale, or for one of the social capital questions, whether or not the respondent said that ‘most people in the neighbourhood could be trusted’); the ‘predictor’ (or independent) variables were the city of residence (Glasgow, Liverpool or Manchester) and the following sample characteristics (defined in more detail in Appendix B): age, gender, ethnicity, social class, area deprivation quintile, educational attainment, employment status, marital status, health status, and length of residence in the city^{xvi}.

For models examining answers to questions about the 1980s (limited to those who were aged at least 16 years by 1990, and who were resident in the same city in that decade), employment status in the 1980s was additionally included as an independent variable. Models were either based on linear regression or logistic regression, depending on the type of outcome variable being examined^{xvii}.

Models were built incrementally, but only significant variables were included in the final models presented in this report. A number of statistical tests were employed to ensure accuracy and ‘robustness’ of the models (for example tests for co-linearity of independent variables, goodness of fit, cases of undue influence and so on). Further details of these are included in Appendix B.

^{xv} Social class is assessed by means of approximate ‘Social Grade’. Social Grade is the socioeconomic classification used by the Market Research and Marketing Industries, and is used in the analysis of UK Census data. The scale is used for individuals aged 16 and over, classified by the Social Grade of their Household Reference Person (HRP). The categories, derived from occupation, are: A: High managerial, administrative or professional; B: Intermediate managerial, administrative or professional; C1: Supervisory, clerical and junior managerial, administrative or professional; C2: Skilled manual workers; D: Semi-skilled and unskilled manual workers; E: unemployed, on state benefits or ‘lowest grade workers’.

^{xvi} In analysing the data it seemed important to distinguish between the views of those who had been resident in their city for a long time and those who had not. However, no specific question on length of residence in the city was included in the survey. Thus, a crude measure of likely length of residence was derived from other available information: respondents were asked how long they had lived in their neighbourhood as part of the social capital questions (with options ranging from ‘under six months’ to ‘over five years’), and those who lived through the 1980s (i.e. were aged at least 36 at the time of the survey) were additionally asked in which city they had been resident for most of that decade. From those two questions, respondents were categorised as being ‘Possibly long-term resident’ (based on either being resident in their neighbourhood for five years or more, or having been in the same city in the 1980s) or ‘length of residence in city unknown’. This variable was included in the regression modelling analyses.

^{xvii} Linear regression is used for ‘continuous’ outcome variables such as the Sense of Coherence score, while logistic regression is used for ‘binary’ outcomes (0 or 1) such as whether or not respondents recorded that they thought people in their neighbourhood could be trusted (e.g. recorded as ‘1’ if the respondent said people could be trusted, or recorded as ‘0’ if they did not).

For the main topics included in the questionnaire, a series of additional models was run for the Glasgow sample only. This was to show which characteristics of the sample were significantly associated with differences in the outcomes (survey questions) within a specifically Glasgow context.

Models were run using weighted and unweighted data. The results of the weighted analyses only are presented in this report^{xviii}.

Note: to enhance readability of this report, although the statistical models are referred to throughout, most charts will present the simpler descriptive analyses (for example 'Sense of Coherence' score by city, or by city and age). This is discussed further in the next section.

^{xviii} Modelling of the unweighted data was undertaken as a precaution as the use of weights in some regression analyses can complicate interpretation of the results. Generally, however, there were very little differences between the values (coefficients or odds ratios) obtained for the cities in the weighted compared with the unweighted models.

Results

5. Results

The results are presented in the following order. First, a brief section considers the representativeness of the sample, as this is a key consideration for the rest of the report. This is followed by an equally brief profile of the three survey samples (i.e. the respondents in Glasgow, Liverpool and Manchester), another useful aid to interpretation of the main results of the analyses. The report then presents the analyses of all the various data relating to the hypotheses listed in Section 4 and Table 1 above i.e.: sense of coherence; social capital; political effects; individual values; social mobility; anomie; early years. In each of these sections, we seek to answer the high level research questions only, principally whether or not there are significant differences between the cities for the various topics presented.

As stated, for reasons of clarity and readability, simple descriptive analyses are presented throughout. In each case, however, the text refers to the more complex statistical modelling analyses that have been undertaken (the results of which are presented in full in Appendix B). It should be noted, however, that in general the differences between the cities that are evident from the descriptive analyses (for example the differences in average Sense of Coherence score, or the different percentages of the city samples stating that people in the neighbourhood can be trusted) are very similar to those obtained in the modelling analyses. This is because in many cases variations in responses for some 'outcomes' (e.g. the question on trust) are not explained greatly by the 'predictor' information included in the models.

5.1 Representativeness of the survey samples

This section is brief, but important. We have to be sure that the collected data are reasonably representative of all three cities, and to the same degree, to have confidence that the results presented in the report, and especially any differences between the cities that they appear to show, are likely to be true of the populations as a whole (rather than just the survey samples). Two topics are addressed: response rates, and comparisons with other data. Appendix G contains more detailed analyses of the latter.

Response rates

As stated in the Methods section, an overall response rate of 55% was achieved. This is on a par with response rates achieved by many national surveys such as the Scottish Health Survey⁶³, the British Social Attitudes Survey⁶⁴ and the Labour Force Survey⁶⁵. On the one hand, therefore, this is an acceptable rate; on the other hand, we have to be aware that these population surveys, and especially those with response rates at this level, are unlikely to reach (and therefore represent) all sections of society. One might, therefore, expect a ‘healthy respondent effect’⁶⁶ and this, alongside other potential influences, is something we have to be aware of in interpreting the results of the data analyses.

Figure 1 shows the overall response rate by deprivation decile across all three cities (where ‘Decile 1’ includes the tenth of the population living in the *most* deprived areas in each city, and ‘Decile 10’ the tenth of the population living in the *least* deprived areas). This shows that the overall rate of 55% varies according to neighbourhood type, with higher response rates in the more deprived areas compared with the less deprived areas. With lower rates of employment and economic activity in more deprived urban areas, this is likely to reflect greater availability of potential respondents when contacted by a survey interviewer. It may also, to a degree, counter any potential healthy respondent effect (i.e. as health is such a socially patterned issue). Figure 2 (presenting response rates by deprivation decile within each city) also shows that this gradient differs by city, with the greatest variation in Glasgow (where response rates range from 53% in the least deprived areas to 65% in the most deprived) compared with the two English cities.

Figure 1

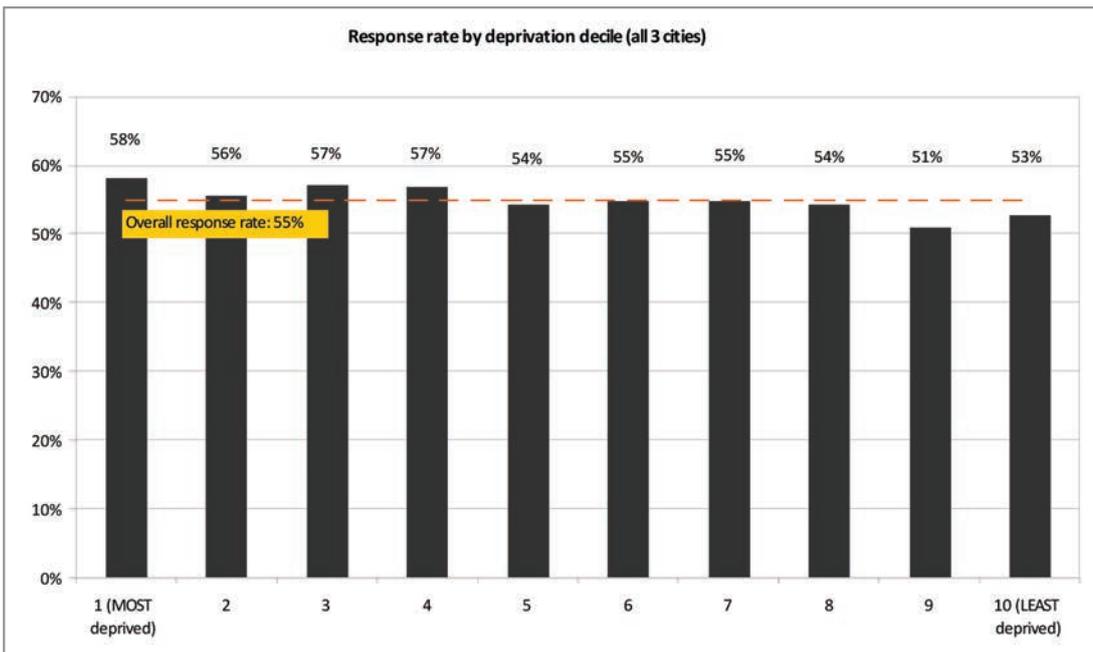
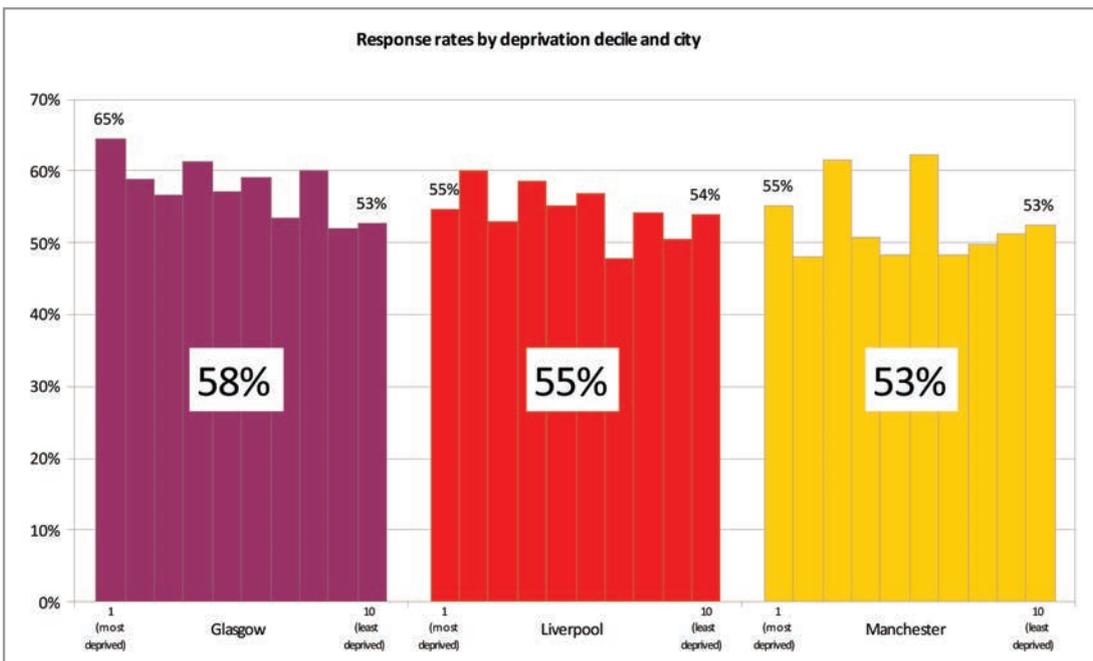


Figure 2



Comparisons with other data

The representativeness of the samples was also assessed by means of comparisons with other survey and administrative data. As stated, at the time of undertaking the analyses, detailed 2011 Census data were not available for all three cities (at the time of writing a limited amount of data had been made available for Liverpool and Manchester, but not Glasgow); thus, although we refer to some 2011 Census data where helpful to do so, generally we use a range of other data sources, including – necessarily, but less than optimally – the 2001 Census.

The full range of analyses undertaken are presented in Appendix G, but a brief summary of the main results is as follows:

- The sample tends to under-represent the young (especially in Manchester) and over-represent the elderly (Appendix G). However, this is corrected through application of the survey weighting.
- The expected ‘healthy respondent effect’ is arguably reflected in significantly fewer respondents in the survey reporting that they have a limiting long-term illness (LLI) than was recorded in the 2001 Census^{xix}. However, the question used in the 2001 Census was quite different to that used in this survey, and therefore such comparisons are not straightforward^{xx}. Furthermore, there is little difference between the percentages of the working age (16-64 years) populations classed as being unable to work due to illness or disability in the survey compared with the 2010/11 Annual Population Survey (APS)^{67,xxi} (8% versus 9%, 9% versus 7%, and 6% versus 8% for Glasgow, Liverpool and Manchester respectively): this suggests that any healthy respondent effect may be truer of the older members of the sample.
- Reflecting to a degree the higher response rates achieved in the more deprived areas of the cities compared with the least deprived areas, the survey over-samples those who are not working: in each city there tend to be lower numbers of employed and higher numbers of unemployed compared with the total population. The survey also over-represents some groups of the economically inactive such as those looking after their home and family. All these data are shown in Figures 3-5 below, the first of

^{xix} For example, 20% of adults aged 16+ in Glasgow in the three-city survey compared with 30% in the 2001 Census, with the equivalent figures for Liverpool being 25% and 29%, and for Manchester 20% and 26%. However, the differences in the wording of the questions make interpretation of these differences very difficult.

^{xx} The three-city survey used the same question that was used in the 2011 Census. At the time of writing, however, no relevant 2011 Census data were available for Glasgow; and comparable (in terms of age) figures for the numbers of adults with a limiting long-term illness in Liverpool and Manchester were also unavailable. The 2001 Census asked: ‘Do you have any long-term illness, health problem or disability which limits your daily activities or the work you can do?’ (with the possible responses being ‘yes’ or ‘no’); the survey question (and the 2011 Census question) was: ‘Are your day to day activities limited because of a health problem or disability which has lasted, or is expected to last, at least 12 months?’, with answers being ‘Yes – limited a lot’, ‘Yes – limited a little’, and ‘No’.

^{xxi} The Annual Population Survey (APS) is run by the Office for National Statistics (ONS) and combines data from the Labour Force Survey (LFS) and the English, Welsh and Scottish LFS boosted samples.

which compares categories of economic status for Glasgow between the survey and the 2001 Census only, while the latter two compare with data from the 2001 and 2011 Censuses for Liverpool and Manchester. In all cases, the comparisons are for a subset of respondents aged 16-74 years.

- As Figure 5 also demonstrates, the biggest concern relates to the Manchester sample, for which differences in employment status between the three-city survey and the census are greatest. Sixteen percent of adults aged 16-74 years in the survey were unemployed, compared with 6% in the census.

Figure 3

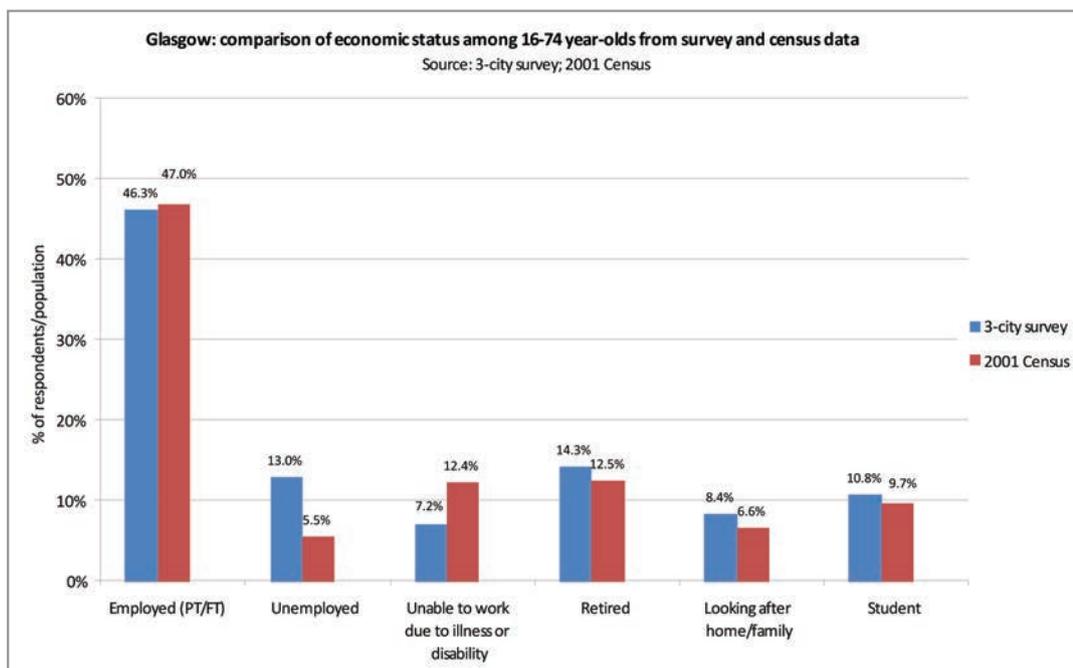


Figure 4

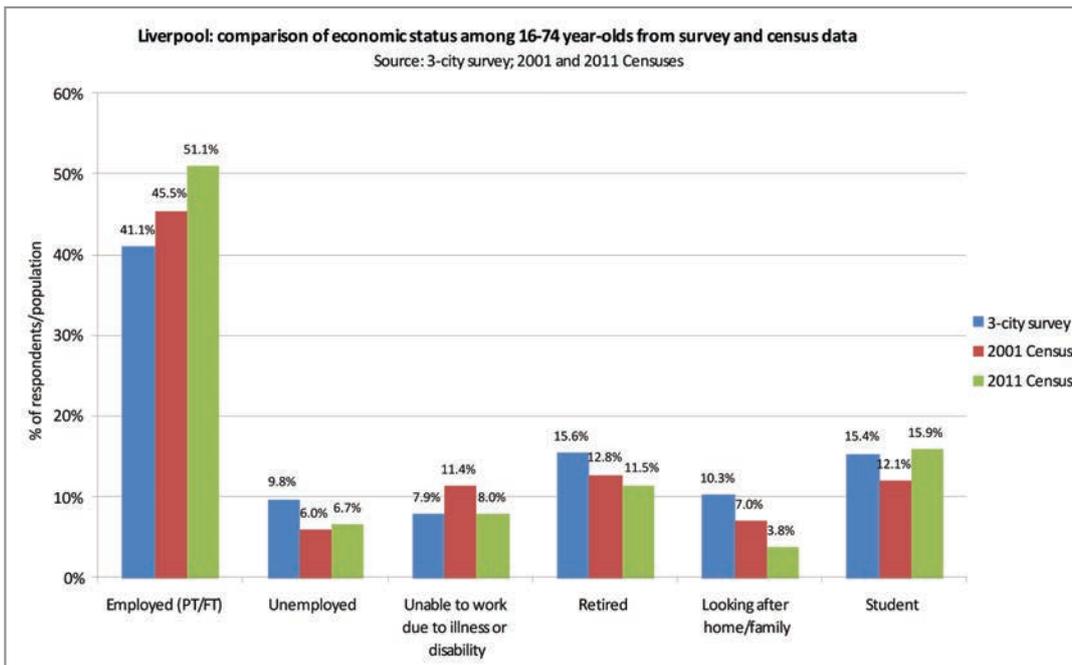
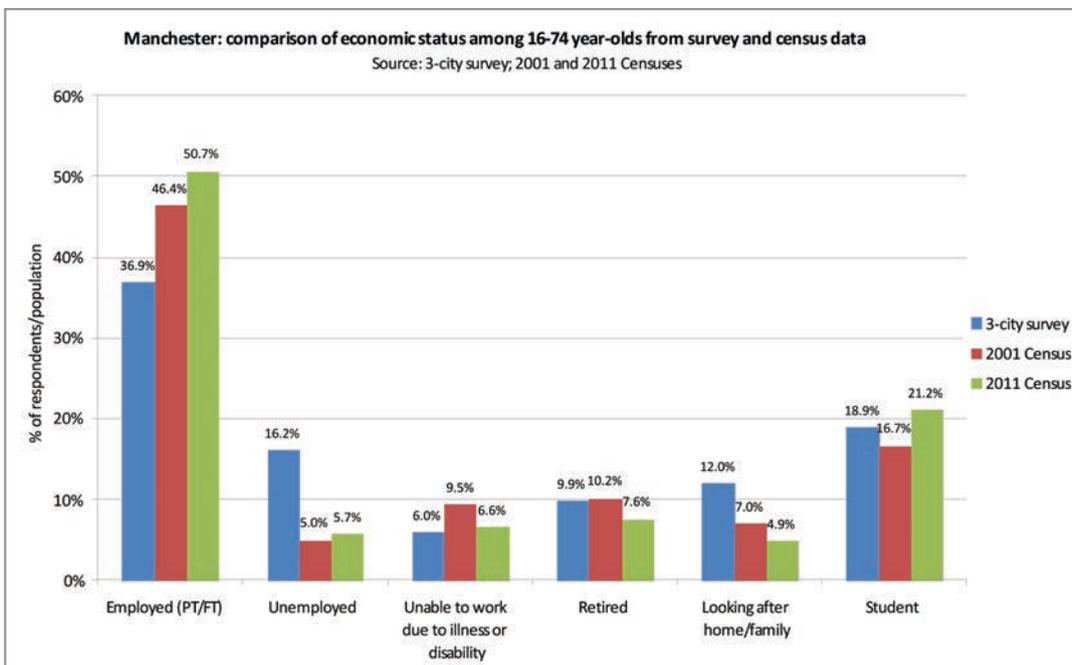
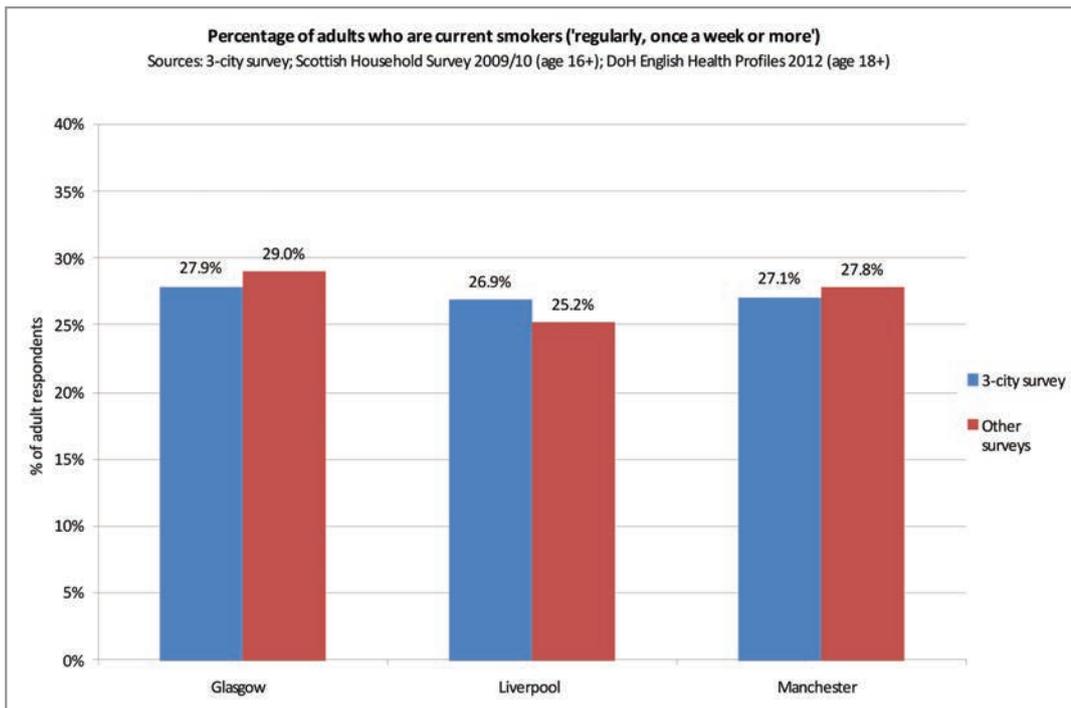


Figure 5



- However, as Figures 3-5 also show, other economically inactive groups (e.g. students) appear to be reasonably well represented in the survey. More generally, comparisons with a range of other data – housing tenure, marital status (both shown in Appendix G), smoking status (Figure 6) – suggest that the sample is, in many other ways, reasonably representative.

Figure 6



- For comparisons of educational attainment, the picture is more complex: compared with the APS, the survey seems to under-sample those with degree-level qualifications in Glasgow and Manchester (14% versus 24%, and 15% versus 26% respectively), but not in Liverpool (19% versus 17%) (Appendix G); however, there are very similar percentages of the survey sample with no educational qualifications in Glasgow and Liverpool compared with the APS (23% versus 21%, and 19% versus 17% respectively), although the same is not true of the Manchester sample (31% versus 15%)^{xxii} – see Figure 7 below.
- Comparisons of ethnicity are also difficult because of the absence of 2011 Census data, the most reliable data source for this measure^{xxiii}. However, comparisons with 2009/2010 APS data^{xxiv} suggest that the three-city survey is very representative of Glasgow and Manchester in this regard, but less so of Liverpool (Figure 8).

^{xxii} Comparisons with the 2011 Census show a similar similarity (Liverpool) and difference (Manchester): for all adults (aged 16+), 26.2% of three-city survey respondents in Liverpool reported that they had no educational qualifications, compared with 28.7% of adults in the Census; however, the equivalent figures for Manchester were 35.1% and 23.1%.

^{xxiii} At the time of writing, English census data on ethnicity were only available for all ages, not for the adult (16+) population. No Scottish data at local authority level were available.

^{xxiv} APS figures on ethnicity for 2010/11 are not available.

Exploring potential reasons for

Glasgow's 'excess' mortality

Results of a three-city survey of Glasgow, Liverpool and Manchester

Figure 7

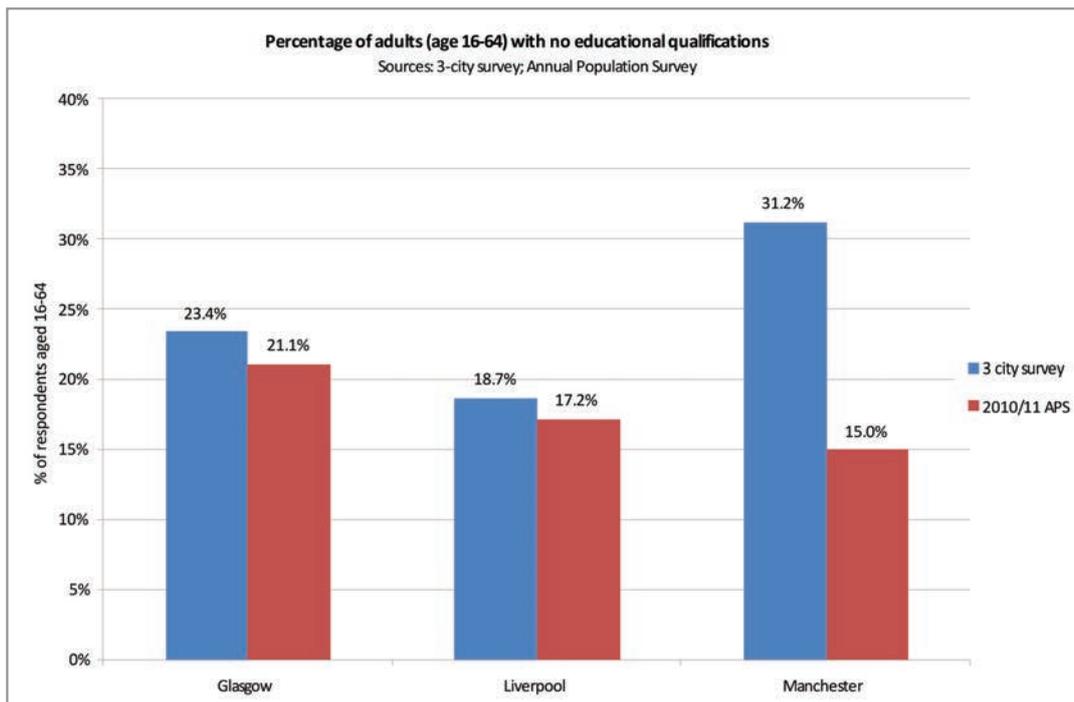
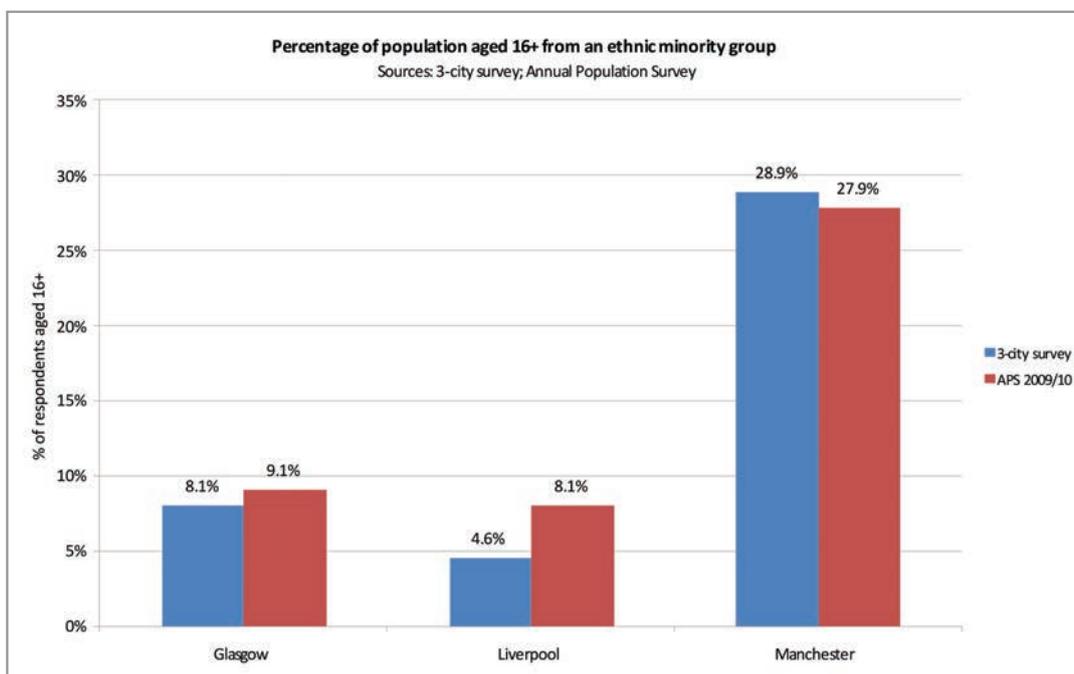


Figure 8



In summary, given the response rate, we would expect differences between the profile of the samples and the general population, and this is the case: there may be some evidence of a healthy respondent bias (although principally among older respondents), and the sample generally over-represents the unemployed, and under-represents the employed. The Manchester sample is particularly affected in this way.

However, a range of other data – housing tenure, marital status, smoking behaviour, aspects of educational attainment, ethnicity (with the slight exception of Liverpool) – suggest the sample is reasonably representative. The differences in other factors emphasise the importance of controlling for variations in the characteristics of the samples within the modelling analyses. In that way we can be sure that any differences seen – for example – between Manchester and the other two cities hold true over and above the influence of the characteristics of the Manchester sample (e.g. higher unemployment among respondents).

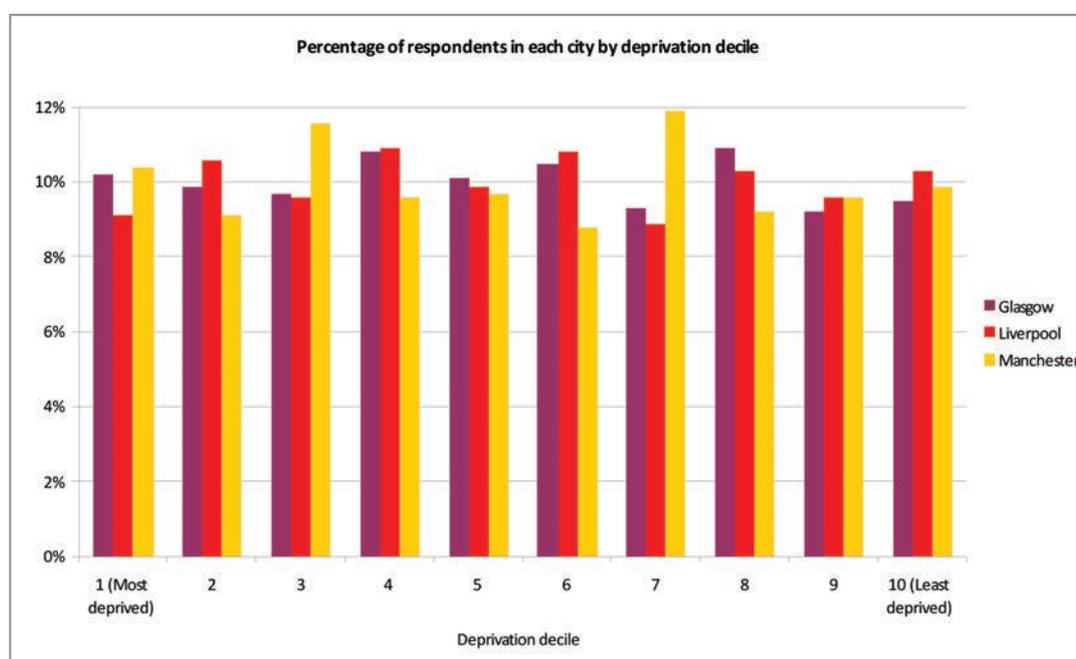
With the publication of small-area based 2011 Census data at the end of 2013, it may at that stage be possible to re-weight the data to adjust for differences in – for example – the Manchester sample, and assess whether such adjustment alters the main findings presented within this report.

5.2 Profile of the survey respondents

Before proceeding to the results of the main analyses, this section briefly profiles the respondents in terms of some of the other (e.g. sociodemographic) information collected in the survey. Some of this overlaps with the data presented or discussed in the previous section, but the intention here is not to compare the survey data with other data sources, but instead to assess similarities and differences between the three cities' samples, and thereby to provide further relevant context to the analysis results that follow.

Echoing the presentation of response rates by area type (Figures 1-2 in Section 5.1), Figure 9 shows the percentage of respondents living in each deprivation decile, confirming a reasonably equal distribution of respondents in this regard.

Figure 9



However, not all individuals living in areas classed as 'deprived' are themselves deprived; similarly, deprived individuals may reside within areas classed as affluent⁶⁸. Figure 10 shows the social grade (defined in Section 4) profile of the samples: the higher percentage of the Manchester sample in social grade E (on state benefits/unemployed/lowest grade workers) is noticeable, reflecting the higher percentage of that sample that was unemployed (highlighted in the previous section). Figure 11 shows these individual social grade classifications within each deprivation quintile (quintiles, rather than deciles, are used here, and in all other deprivation-based analyses, to ensure comparisons are based on large enough samples of respondents): this shows that the Manchester sample has a higher percentage of respondents in Social Grade E in each of the five quintiles.

Figure 10

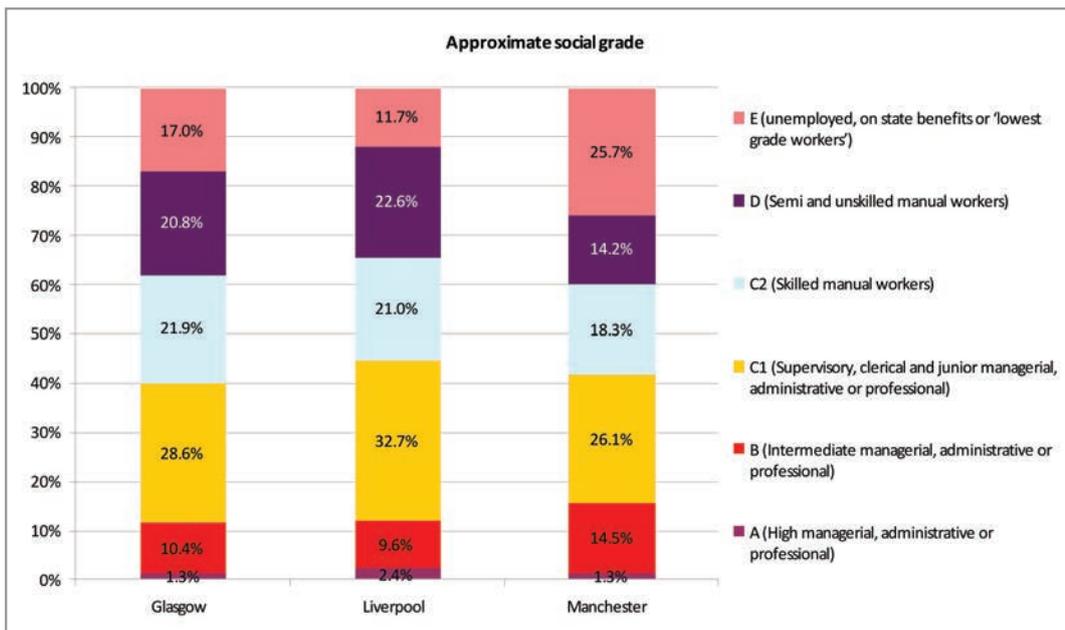
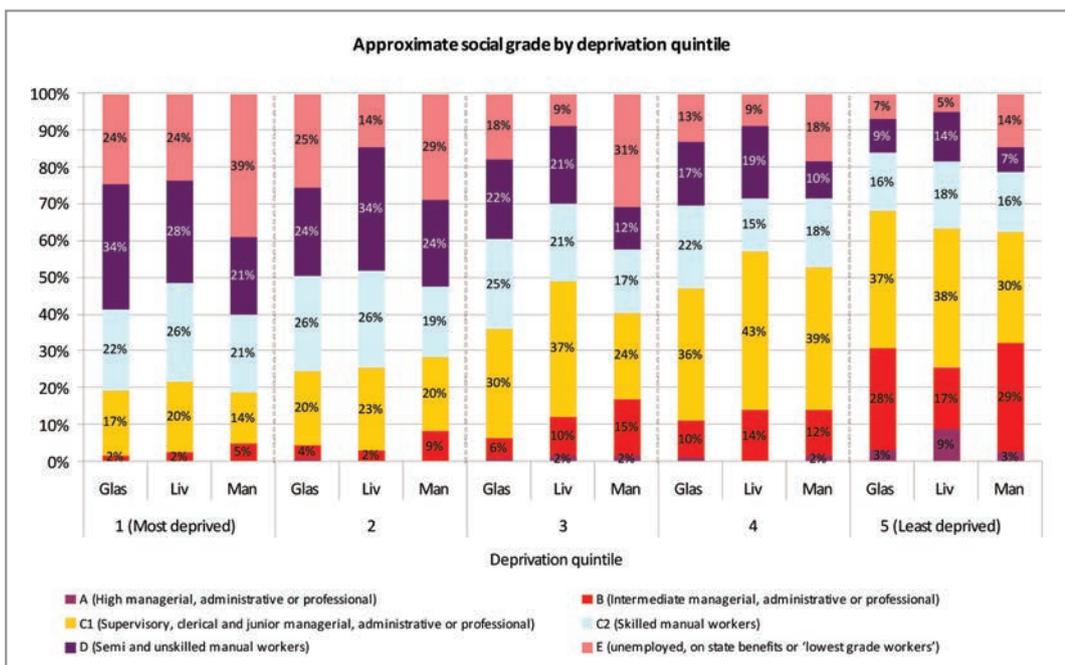


Figure 11



Figures 12 and 13 show educational attainment levels broken down by deprivation quintile and city. With the obvious exception of the higher percentage of Liverpool respondents with degree-level qualifications in the most deprived quintile, there are very few significant differences between the cities in this regard.

Figure 12

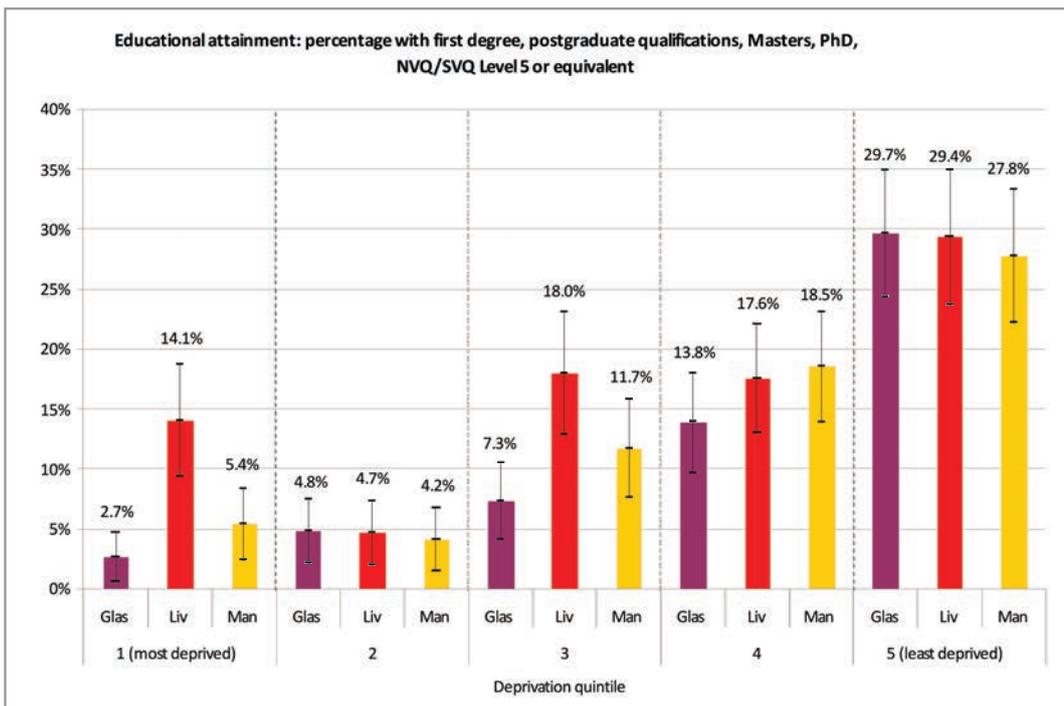
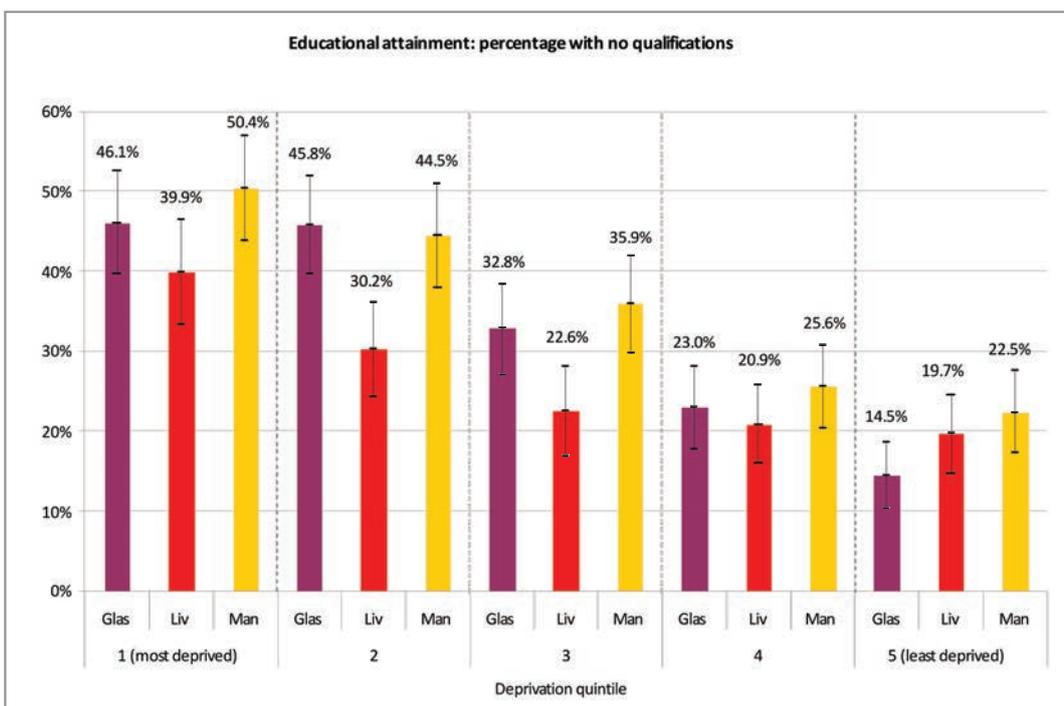


Figure 13



Similarities are also seen across the cities in terms of smoking status (Figure 6 in the previous section), marital status (Figure 14 below) and self-assessed health (Figure 15 below). However, a relatively higher percentage of respondents in Liverpool with a limiting long-term illness is apparent in Figure 16, higher especially in the most deprived quintile (Figure 17).

Figure 14

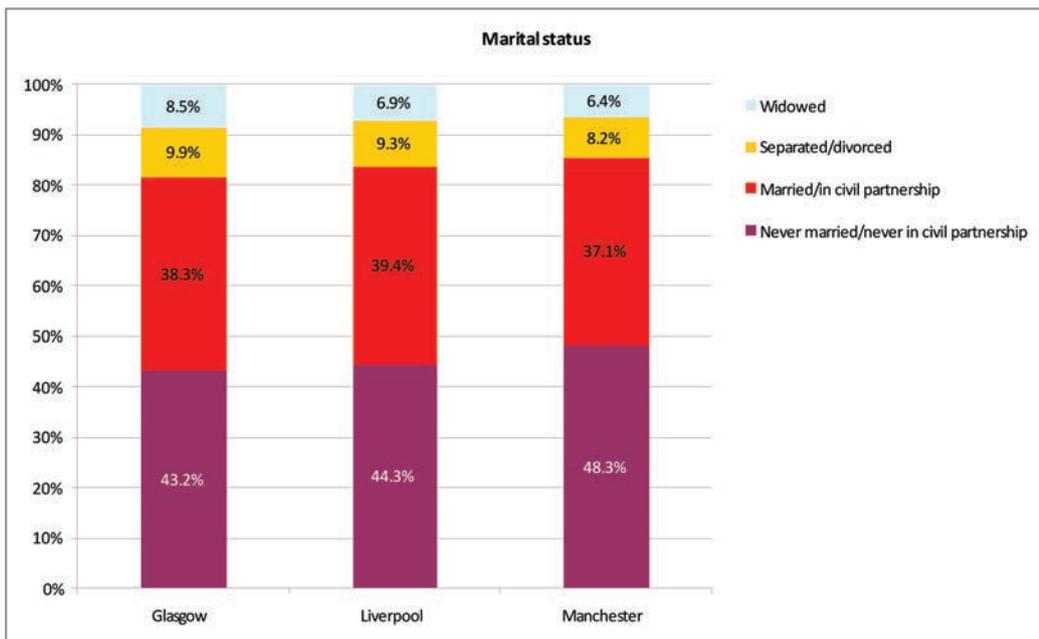


Figure 15

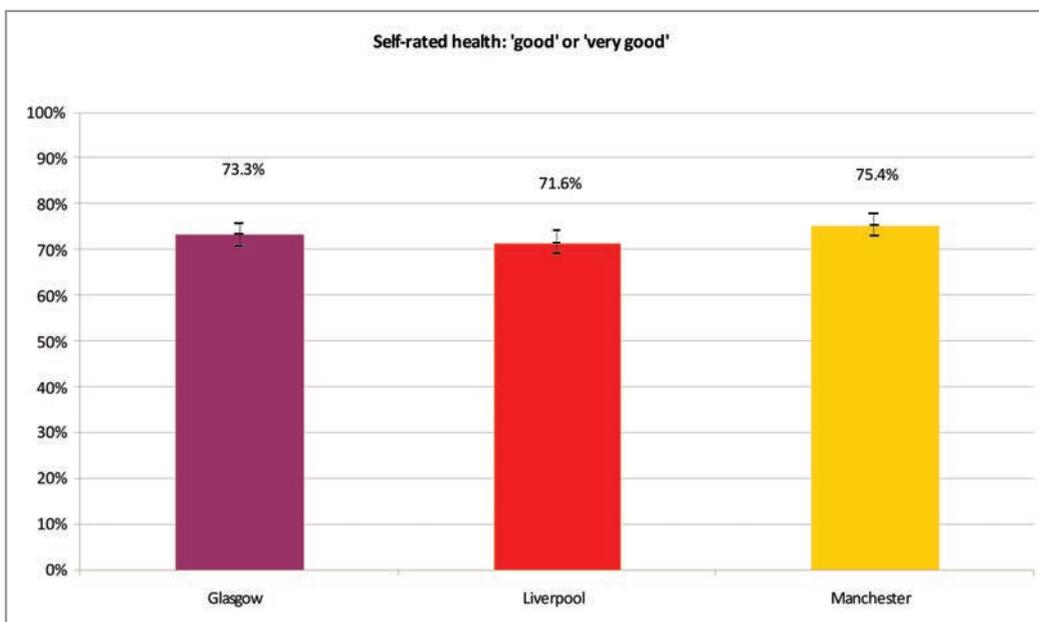


Figure 16

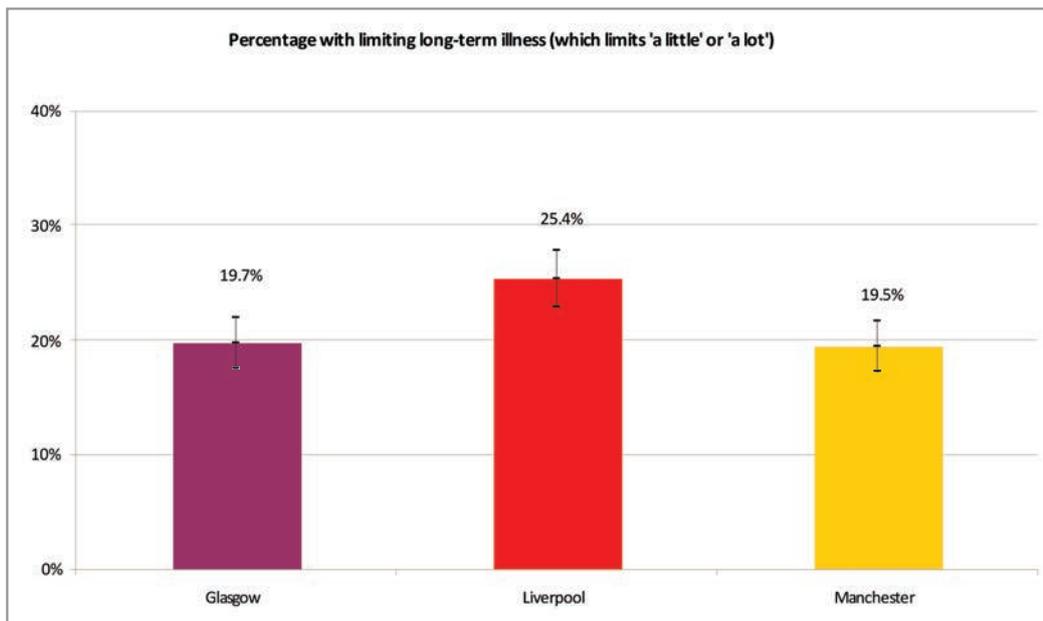
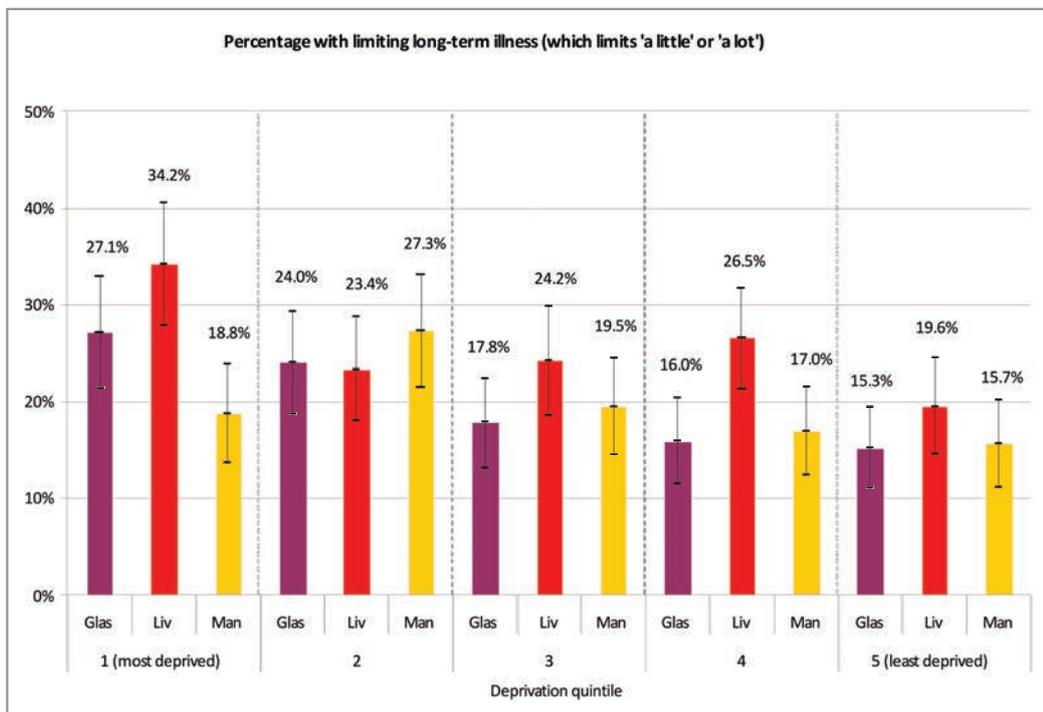


Figure 17



With these profiles of the samples as context, and bearing in mind the slightly more disadvantaged characteristics of the Manchester sample, we now proceed to the main results sections of the report.

5.3 Sense of coherence

Background

Sense of coherence (SoC) is a theory developed by the American-Israeli sociologist Aaron Antonovsky. Emerging from his work around the concept of salutogenesis (a focus on the mechanisms that promote and support good health, in contrast to pathogenesis; the factors that create disease), and in particular the relationship between health and stress, the theory seeks to capture the extent to which people can manage, or be resilient to, the negative effects of stress on health and wellbeing. It was famously developed from his studies of women who survived Nazi concentration camps in the second world war. It is made up of three components: comprehensibility (the extent to which events in one's life can be readily understood and predicted), manageability (having the necessary skills and resources to manage and control one's life) and meaningfulness (there being a clear meaning and purpose to life)²⁹, of which the third was viewed by Antonovsky as the most important. Two versions of the SoC scale were created by Antonovsky, one with 29 questions (SOC-29) and a later one with 13 questions (SOC-13: the one employed in this survey), although a considerable number of modified versions of both have also been used⁶⁹. Overall the measure has been deemed to be a 'reliable, valid and cross-culturally applicable instrument'⁶⁹, and has been shown to be significantly associated with a wide variety of outcomes, in particular: various measures of quality of life^{70,71} and perceived health status⁷²; mental health^{72,73} (e.g. depression, hopelessness^{69,74-77} anxiety, post-traumatic stress symptoms⁷⁸, psychiatric disorders⁷⁹ and suicide⁸⁰); crime⁸¹; risk of tobacco use⁸²; alcohol and drug problems^{83,84}. Some reviewers have questioned its association with physical health⁷³, citing considerably mixed evidence; however, it has been shown to be significantly associated with, for example, circulatory health problems⁸⁵, diabetes⁸⁶, post-surgery recovery^{87,88} and a recent (2008) UK study of almost 20,000 individuals suggested that strong SoC was associated with a 20% reduction in all-cause mortality⁸⁹.

Given the above evidence of links to a variety of health related outcomes, it has been hypothesised that SoC may be lower among the Scottish and Glaswegian populations. Furthermore, given its links to hopelessness and meaningfulness and purpose of life, it is also directly relevant to both the 'psychological outlook' and 'anomie' hypotheses.

Results

Contrary to the hypothesis, SoC was found to be significantly higher among the Glasgow sample compared with the samples for Liverpool and Manchester. It was higher overall (Figure 18), among both males and females (Figure 19), among most age groups (Figure 20), in four out of five deprivation quintiles (Figure 21) and in the majority of social classes (Figure 22): with regard to the latter, a clear social gradient is evident across all three cities, but in the vast majority of cases, SoC remains higher among the Glaswegian respondents. These results are generally true of the three sub-scales, including 'meaningfulness' (Figures 23-25).

Figure 18

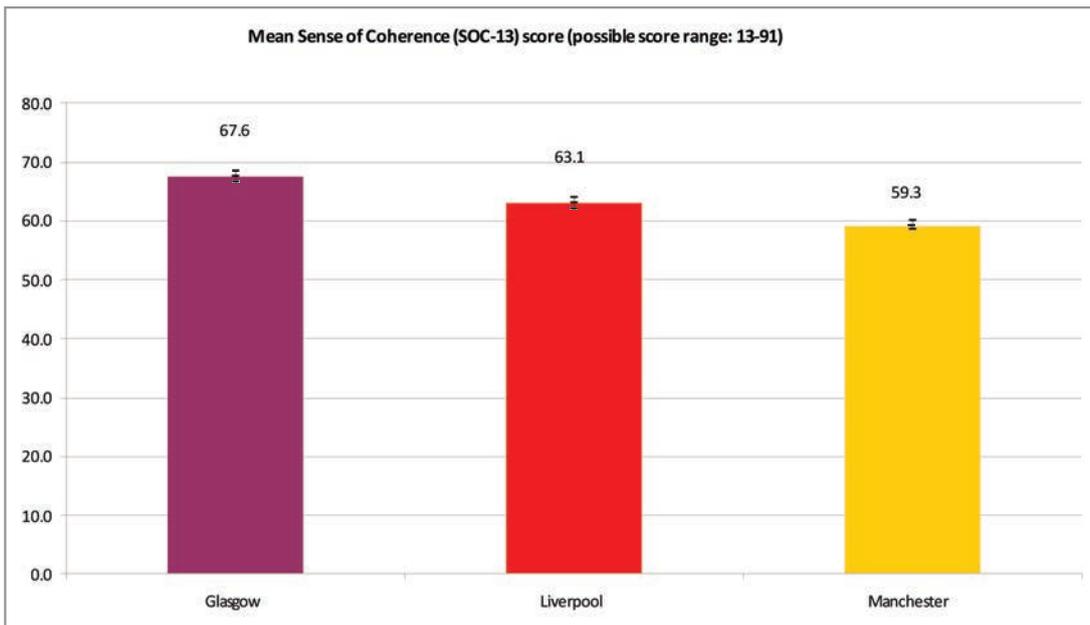


Figure 19

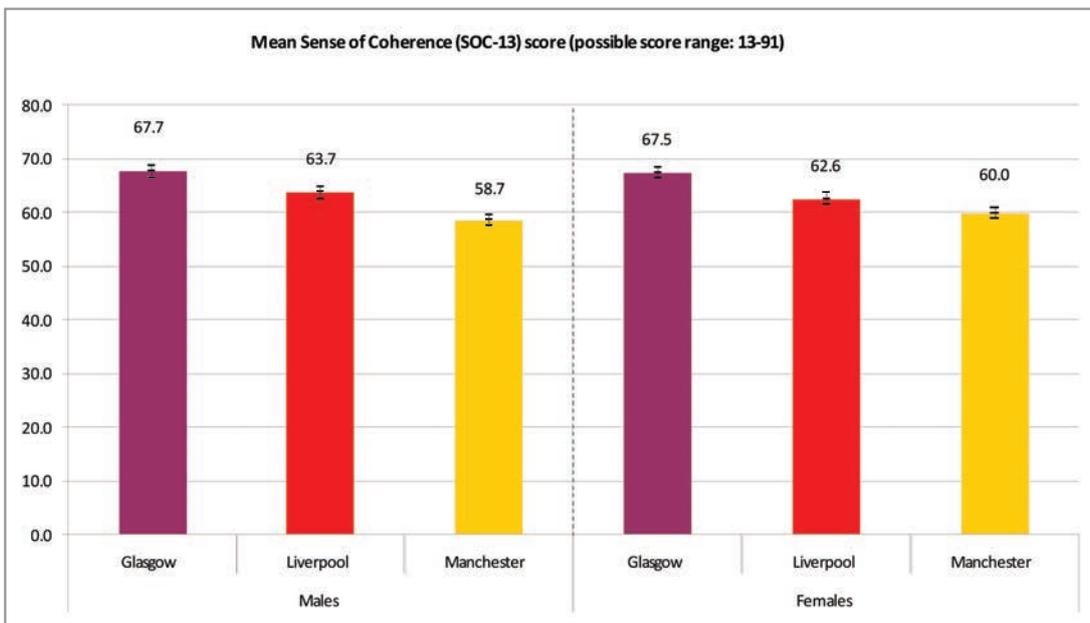


Figure 20

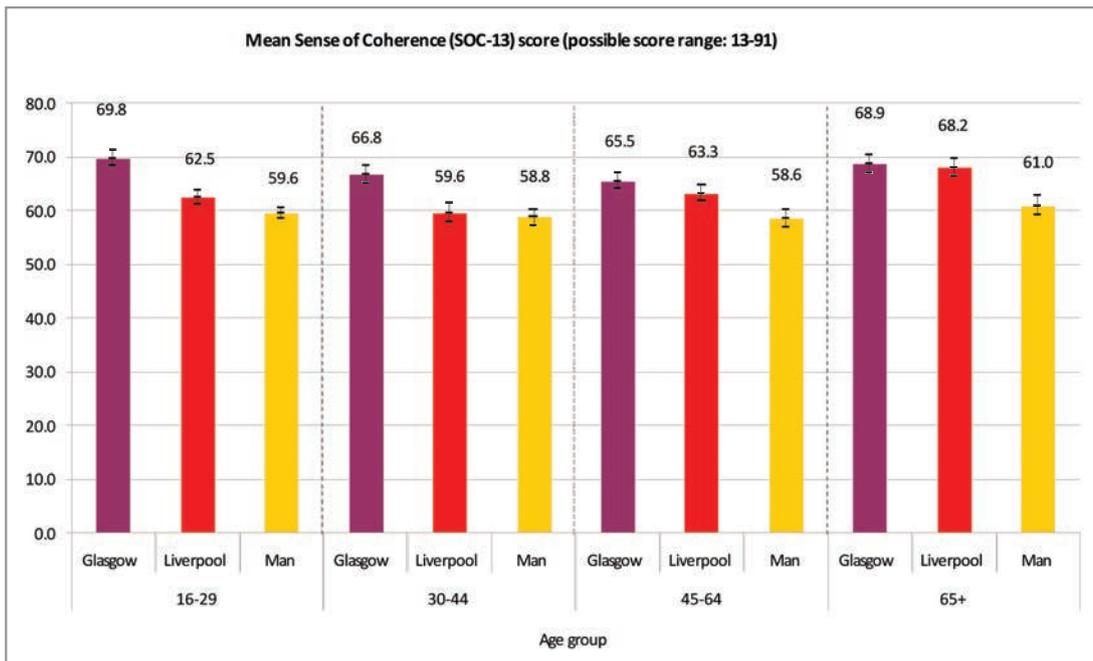


Figure 21

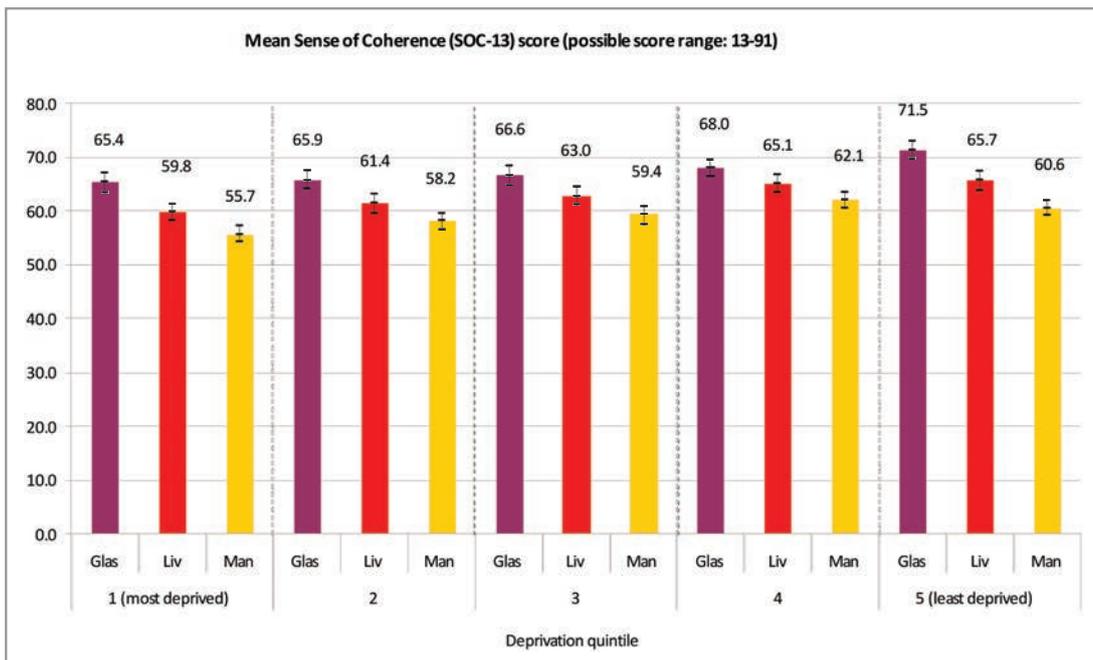


Figure 22^{xv}

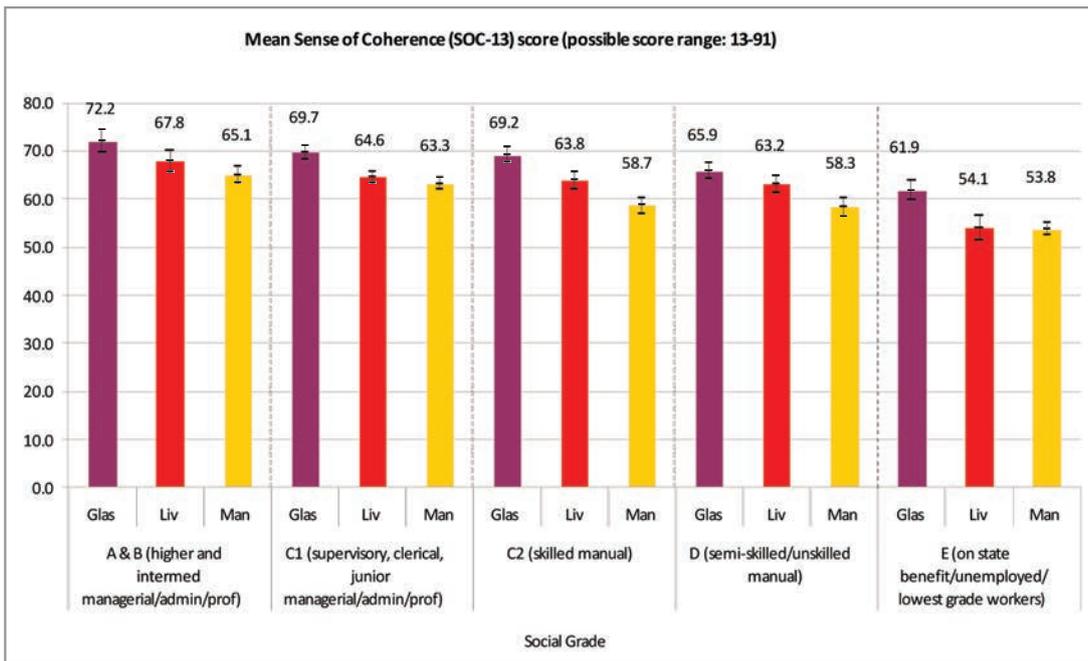
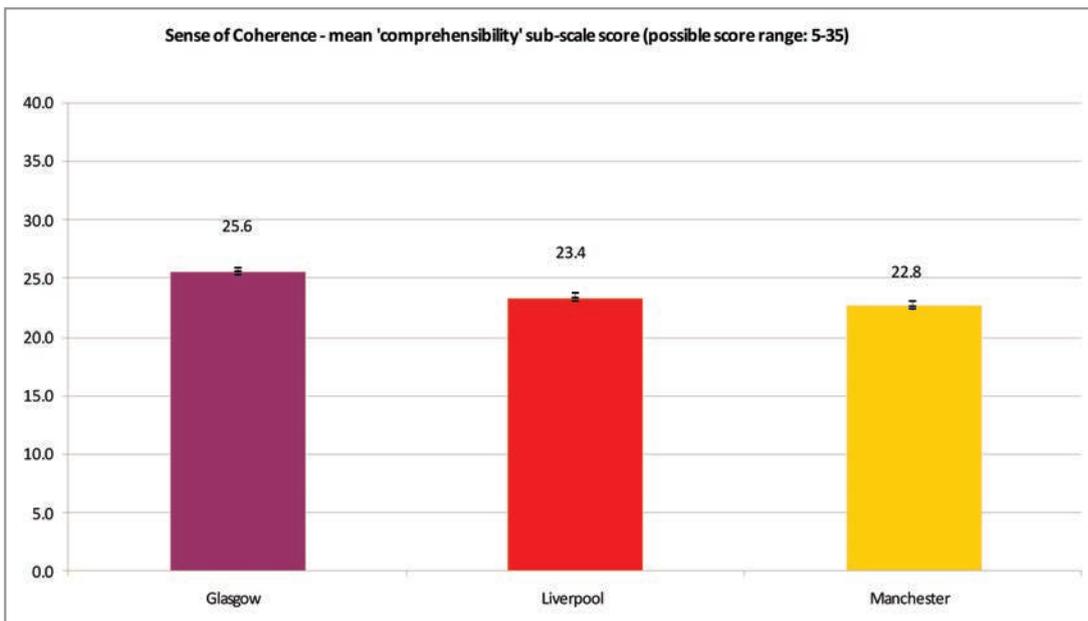


Figure 23



^{xv} Note that in Figure 22, as in all analyses by social grade (including the modelling analyses), social grades 'A' and 'B' were combined into one category. This was because of the very small number of respondents classified as social grade 'A'.

Figure 24

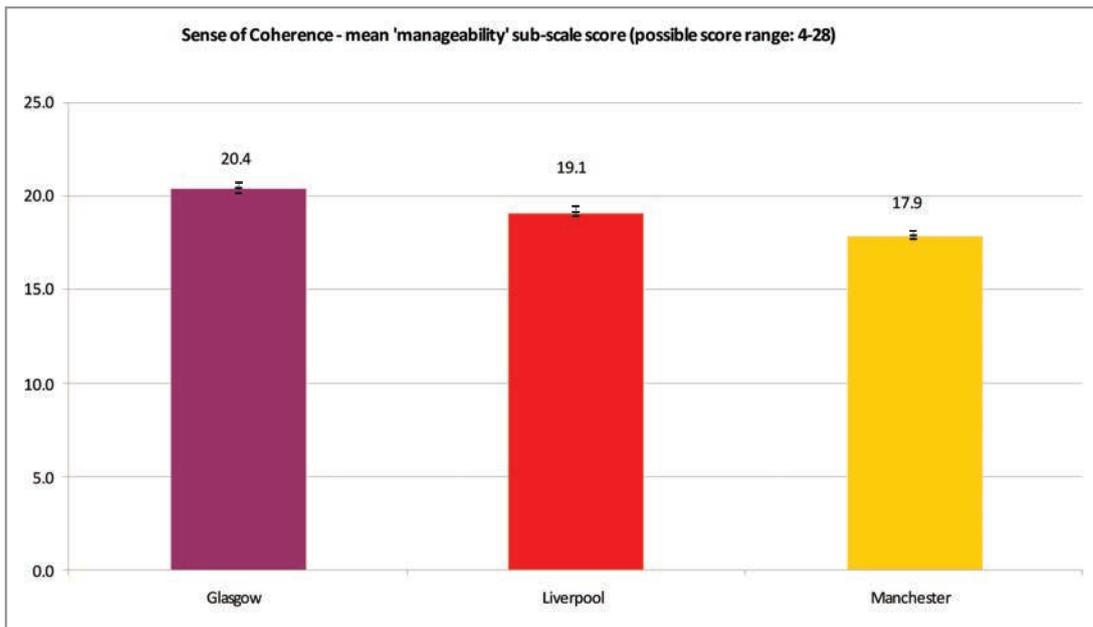
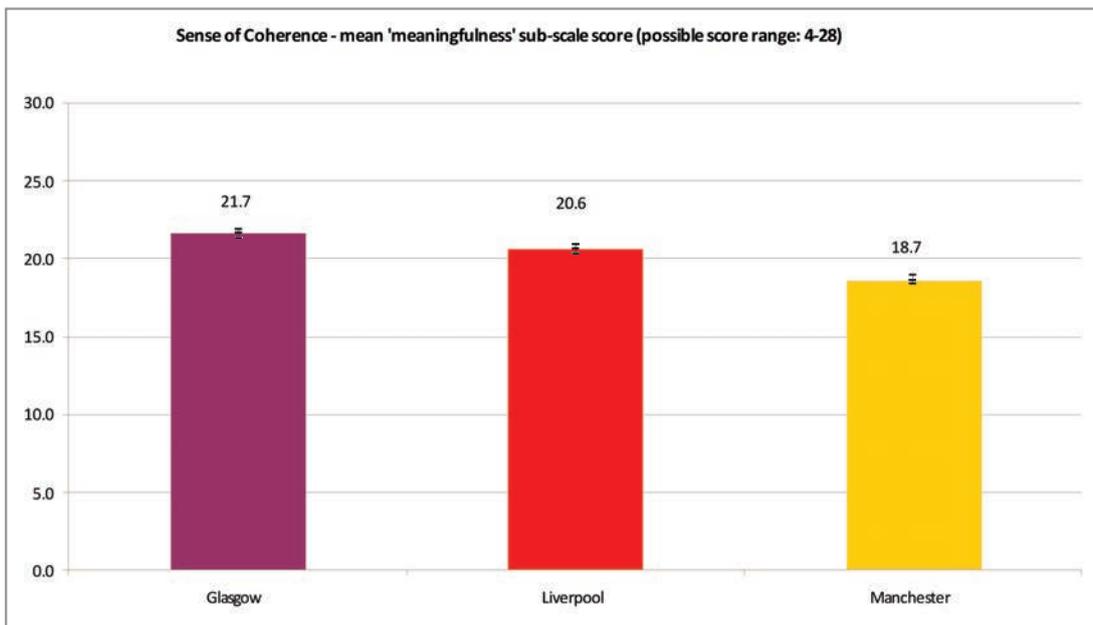


Figure 25



These results are confirmed by multivariate linear regression analyses. Adjusting for differences in the characteristics of the samples (e.g. age, gender, deprivation, social grade, educational attainment, employment status), residents of Liverpool were associated with a mean SoC score of 5.0 lower than residents of Glasgow, with the adjusted mean score of the Manchester sample being 8.1 lower than that of Glasgow^{xxvi}. Significant differences between the cities were also seen in the modelling of the comprehensibility, manageability, and meaningfulness scores. The modelling results are shown in full in Appendix B.

Among the Glasgow sample, the factors associated with a *lower* SoC were similar to those in the modelling of the data across all three cities and included: employment status (i.e. not working compared with those who were employed), social class (the same social gradient evident as seen in Figure 22 above), living in a deprived area, and self-assessed health (those with 'fair' or 'bad or very bad' health status had significantly lower SoC than those with 'good or very good' health).

Comparisons with other data

As stated in the Methods section, it is difficult, and potentially misleading and unhelpful, to compare SoC scores (and indeed, other measures) between different surveys, given the different population characteristics, socioeconomic conditions, sampling methodologies, sample sizes and response rates that may apply. This report does not, therefore, seek to undertake any comprehensive review of, or comparison between, different studies. That said, it is clearly also important to be aware of general ranges and variation in such scores to provide a sense of reassurance that the measures reported here are not in some way unreliable.

A series of systematic reviews of the SoC scale was undertaken by Eriksson and Lindström between 2005 and 2007^{69,70,72}. From 127 studies published between 1992 and 2003, the mean score for the 13-item SoC scale (SOC-13) ranged from 35.4 to 77.6. Very low scores were obtained from particular sub-groups of populations, for example 35.4 from a group of Norwegian substance abusers⁹⁰, 53.3 for unemployed schizophrenics in Sweden⁹¹ and 59.9 for American single parents of disabled children⁹². There have been relatively few studies of the general population, and of those, many were small in size, and the scores range considerably: for example, from 59.0 in the Canadian general population in 1999⁹³ to 70.8 in the Swedish population in 2002⁹⁴. It is difficult to assess, therefore, whether the scores obtained in this study for residents of Glasgow (67.6), Liverpool (63.1) and Manchester (59.3) are high or low compared with other populations. That said, one recent study in Glasgow⁹⁵ measured SoC among deprived and affluent groups in the city, and found fairly similar results: the SOC-13 score was 59.6 for the deprived group and 70.3 for the affluent group, which are not significantly different from the scores of 61.9 (95% confidence interval: 59.9-63.4) and 72.2 (69.9-74.4) for the lowest and highest socioeconomic groups in the Glasgow sample here.

^{xxvi} Regression coefficients (B) (i.e. difference in mean value compared with reference category (Glasgow) after adjustment for other factors in the model): Liverpool -4.99, (95% confidence intervals -5.95,-4.03), $p < 0.0001$; Manchester -8.10 (95% confidence intervals -9.06, -7.14), $p < 0.0001$.

Summary and conclusions

Based on these samples of the cities of Glasgow, Liverpool and Manchester, SoC is higher, not lower, in Glasgow. This is relevant to the specific hypothesis concerning SoC, as well as to the hypotheses around psychological outlook and 'anomie'.

5.4 Social capital

Background

The notion of ‘social capital’ and its importance to population health has been much discussed in recent years, particularly in the last two decades. However, it is not a new phenomenon, with some commentators having highlighted its origins in 19th century sociology^{96,97}. That said, it is undoubtedly a concept that has been developed, and for which more evidence has been assembled, in recent times. It is also a theory that is complex: it has been defined in many different ways and by many different commentators⁹⁷⁻¹⁰⁰, albeit with most definitions overlapping to large degrees. Perhaps the most frequently used is that of Putnam^{100,101}, who defines it as the ‘features of social organisation such as networks, norms, and social trust that facilitate co-ordination and co-operation for mutual benefit’, and most authors’ definitions of social capital appear to be based on four similar, key, notions: ‘social trust/reciprocity; collective efficacy; participation in voluntary organisations; social integration for mutual benefit’^{96,102}.

Its complexity is seen in its different sub-concepts or dimensions (structural versus cognitive^{96,103-105}) and its different types (bonding, bridging, vertical (linking) and horizontal). The *structural* dimension relates to the ‘externally observable aspects of social organisation’⁹⁶ (‘behavioural’ components such as participation, or the density of social networks), while the *cognitive* element relates more to issues such as trust¹⁰⁶. *Bonding* social capital refers to social networks between homogeneous groups (e.g. people within the same community), while *bridging* refers to connections between heterogeneous groups¹⁰⁰: virtually all the evidence of links between social capital and health relates to bonding capital⁹⁶. *Horizontal* social capital refers to connections made between people or groups perceived as equals, while *vertical* or ‘linking’ social capital instead refers to unequal or hierarchical connections (for example between a community and formal local government organisation or structure)¹⁰⁷.

Although by no means exempt from criticism (particularly relating to: how it is measured¹⁰⁸⁻¹¹²; whether it is an individual or a collective (e.g. of a community) attribute^{96,97,113,114}; and its potential negative effects^{xxvii}), there is, however, a considerable amount of convincing evidence of the beneficial impact of social capital on health and wellbeing. For example, evidence of significant associations between higher social capital and lower mortality have been shown in the USA¹¹⁶⁻¹¹⁹, post-communist Eastern Europe¹²⁰⁻¹²³, Finland¹²⁴, Australia¹²⁵, and Latin America and the Caribbean¹²⁶, and a recent (2012) review of evidence concluded that ‘both individual social capital and area/workplace social capital had positive effects on health outcomes, regardless of study design, setting, follow-up period, or type of health outcome’¹²⁷.

^{xxvii} For example: negative aspects of bonding capital such as criminal gang activity among disenfranchised groups¹⁰⁰ or negative peer effects for risky health behaviours among the young¹¹⁵, or exclusion of outsiders from closely controlled social networks⁹⁷.

To measure social capital in Glasgow, Liverpool and Manchester, we used an expanded version of the ONS (Office for National Statistics) core ‘Social Capital Harmonised Question Set’⁴⁷. The ONS questions cover five topics relevant to the definitions and concepts discussed above: civic participation; social networks and social support; social participation; reciprocity and trust; as well as views of the local area. Closely linked to the concepts of social networks and participation, we additionally considered the notion of ‘religious social capital’. The latter has been confirmed as a ‘valid construct’¹²⁸, and there is a considerable amount of evidence (albeit principally from the USA) of the beneficial impact of religious participation on health outcomes: a ‘meta-analytic’ review of the evidence in 2000 suggested that higher levels of religious attendance were associated with almost 30% lower all-cause mortality compared with those with lower levels of participation¹²⁹. Other reviews have confirmed the association, and although they point to caveats associated with some of the studies, they show that the significantly lower mortality is not explained by potential confounders^{130,131}. Studies have also shown that the association with lower mortality may be stronger in women¹²⁹, while separate research has suggested an important role for religion in impacting specifically on suicide mortality¹³².

The mechanisms by which social capital, including religious social capital, may impact on health and wellbeing are outlined in the Discussion section of this report.

Given all the above, it has been hypothesised that social capital may be lower in Glasgow than in Liverpool and Manchester, thereby helping to explain the city’s higher mortality rates in comparison to the two English cities²⁴.

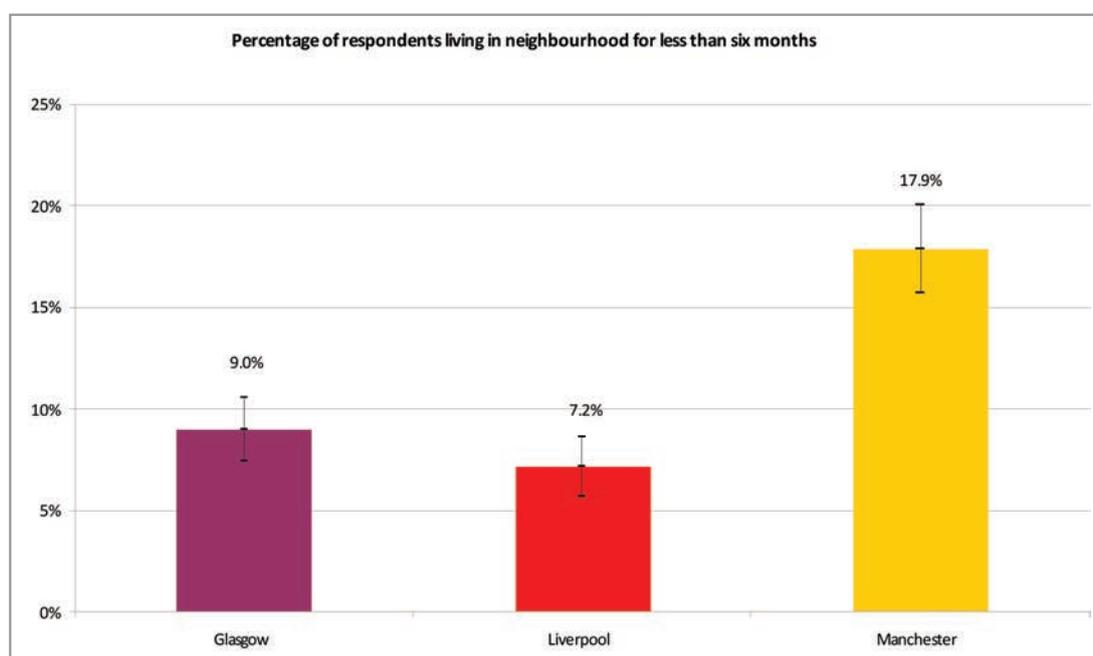
Results

The results are grouped under the five headings of the ONS question set i.e.: views of the local area; civic participation; social networks and support; social participation; reciprocity and trust. However, as will become apparent, some questions are potentially relevant to more than one topic. Questions from the ‘political effects’ section of the questionnaire on perceptions of ability to influence local and national decisions, and perception and engagement with local and national government, are included within the heading of *civic participation*. Religious social capital is included within the section on *social participation* (although it is also relevant to the heading of *social networks*), while questions from Schwartz’s Human Values Scale⁴⁸ are relevant to the cognitive social capital topic of *reciprocity and trust* and so are included under that heading.

Views on the local area

Respondents were first asked about how long they have lived in the neighbourhood: clearly that may influence an individual's opinion of the place in which they live. As Figure 26 shows, it is notable that a significantly higher percentage of the Manchester population had lived in the neighbourhood for less than six months and, correspondingly, significantly fewer had lived there for five years or more (see Appendix A). This difference is particularly marked among younger respondents, and is seen across all neighbourhood types (data not shown). Census data confirm that a higher level of population turnover is a characteristic of Manchester as a whole^{xxviii}.

Figure 26



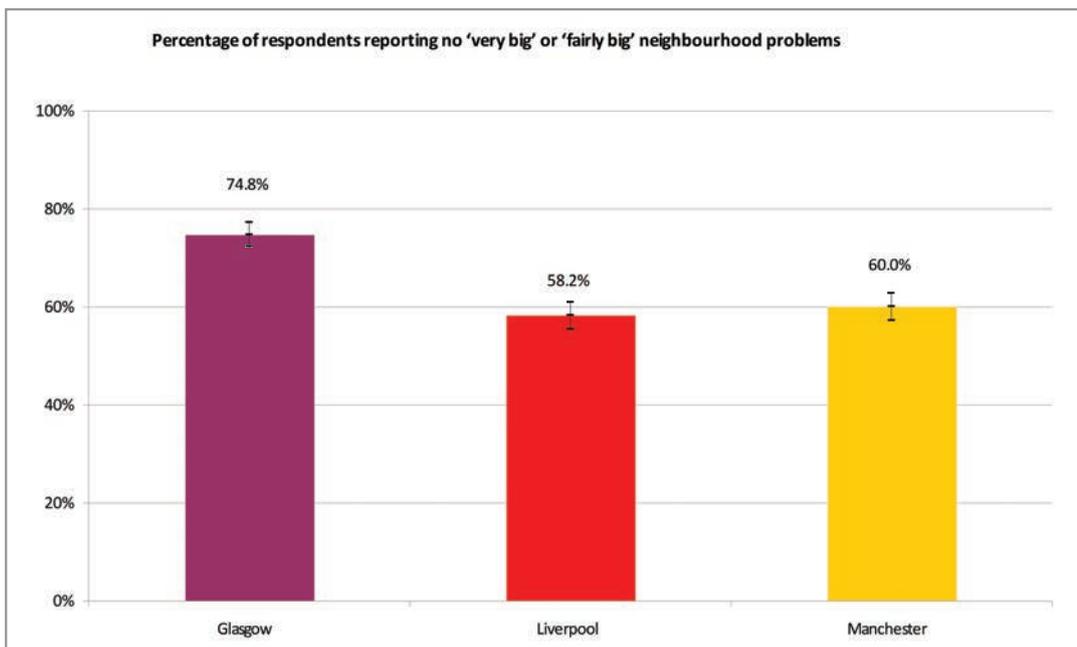
A series of questions were asked about potential neighbourhood problems. These were: people being drunk or rowdy; rubbish or litter lying around; vandalism and graffiti; people using or dealing drugs; racial or religious harassment; teenagers hanging around on the street; and troublesome neighbours. Figure 27 summarises the responses to these questions, suggesting a significantly more positive perception of the neighbourhood in these terms on the part of the Glasgow respondents compared with residents of the two English cities: 75% of the Glasgow sample did not describe any of these issues as being a 'very big' or 'fairly big' problem, compared with 58% and 60% of the Liverpool and Manchester samples respectively.

^{xxviii} In the three-city survey around twice as many Manchester respondents had lived in the area for less than six months compared with respondents in Glasgow and Liverpool. The 2001 Census showed that twice as many people had moved into Manchester in the previous year compared with the other two cities.

These differences are seen for both genders and across all age groups, and as Figure 28 shows, they are also seen across all neighbourhood types: in all three cities, reported problems decreased in line with decreasing levels of area deprivation, but in every area type the percentage reporting no 'very or fairly big' problems was significantly higher in Glasgow^{xxix}.

The statistical modelling confirms these differences: adjusting for all other factors in the model, respondents in Liverpool and Manchester were 2.3 and 2.1 times respectively more likely to report at least one 'very big' or 'fairly big' neighbourhood problem compared with respondents in Glasgow^{xxx}.

Figure 27



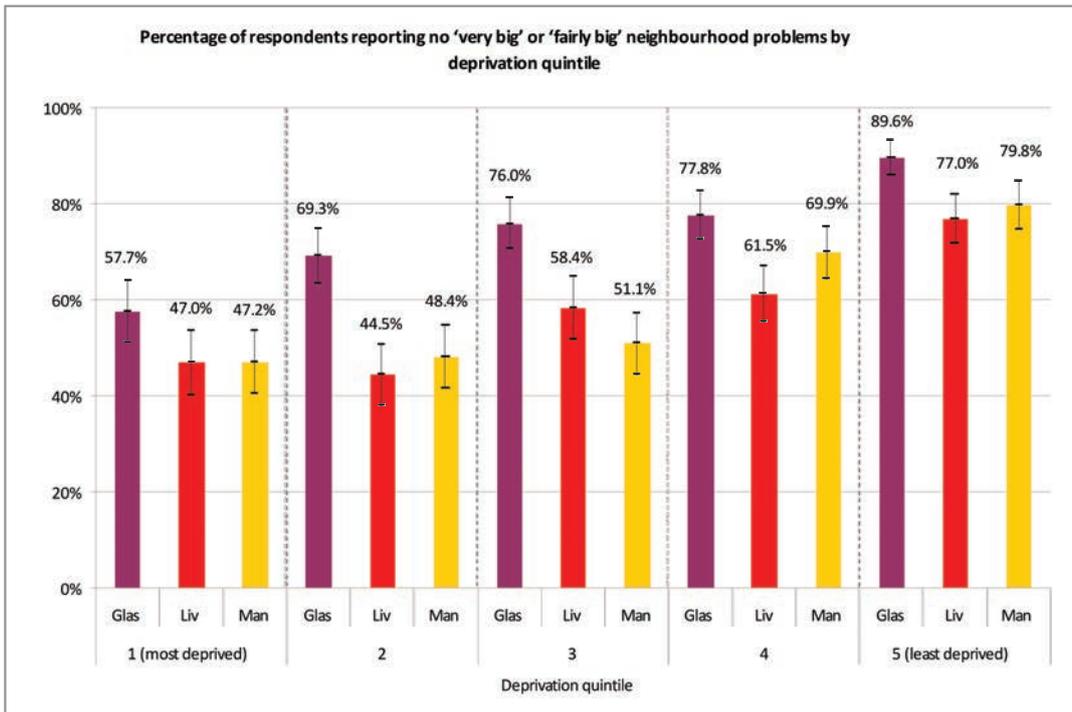
^{xxix} Note that the analyses of the individual questions by area deprivation highlighted a number of interesting differences between the same types of areas across the cities. For example, higher numbers of respondents in the most deprived areas (deprivation quintile 1) in Glasgow (24%) and Manchester (22%) reported people being 'drunk or rowdy' as 'fairly big' or 'very big' problem compared with Liverpool (9%); however, this was not the case in the in the other deprivation quintiles. Similarly, rubbish/litter lying around, vandalism/graffiti and racial attacks/harassment were identified by higher numbers of Manchester respondents in the more deprived quintiles compared with Liverpool and Glasgow. These data are available on request.

^{xxx} Odds ratios: Liverpool: 2.3 (95% confidence intervals 1.9, 2.7), $p < 0.0001$; Manchester: 2.1 (95% confidence intervals 1.7, 2.5), $p < 0.0001$.

Exploring potential reasons for **Glasgow's 'excess' mortality**

Results of a three-city survey of Glasgow, Liverpool and Manchester

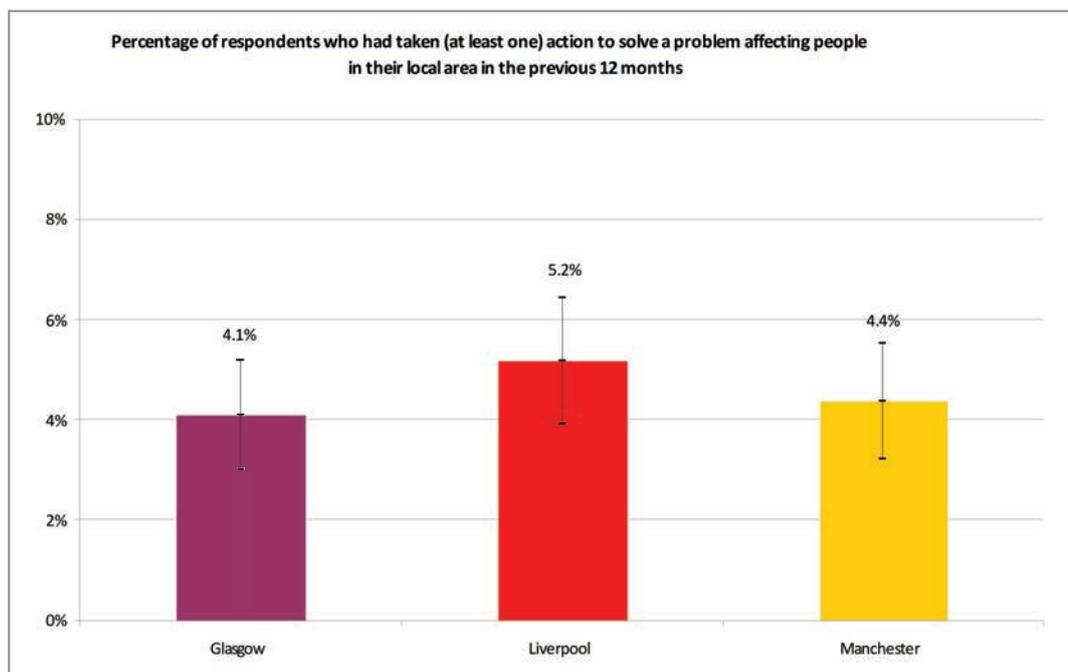
Figure 28



Civic participation

The survey data suggest there are relatively low levels of civic participation across all three cities (at least as defined by the questions used). Respondents were asked whether in the previous 12 months they had taken any action to solve a problem affecting people in their local area, with response options including: contacting the local media (radio/television station or newspaper); the local council (or similar organisation); or a local representative (councillor or MP); attending a public discussion meeting, tenants'/residents' group, protest meeting or action group; and helping to organise a petition. As Figure 29 shows, only 4-5% of each sample said they had done this, with similarly small numbers recorded in most sub-categories (e.g. age, sex, social class). The statistical modelling confirmed there were no significant differences between the cities in this regard.

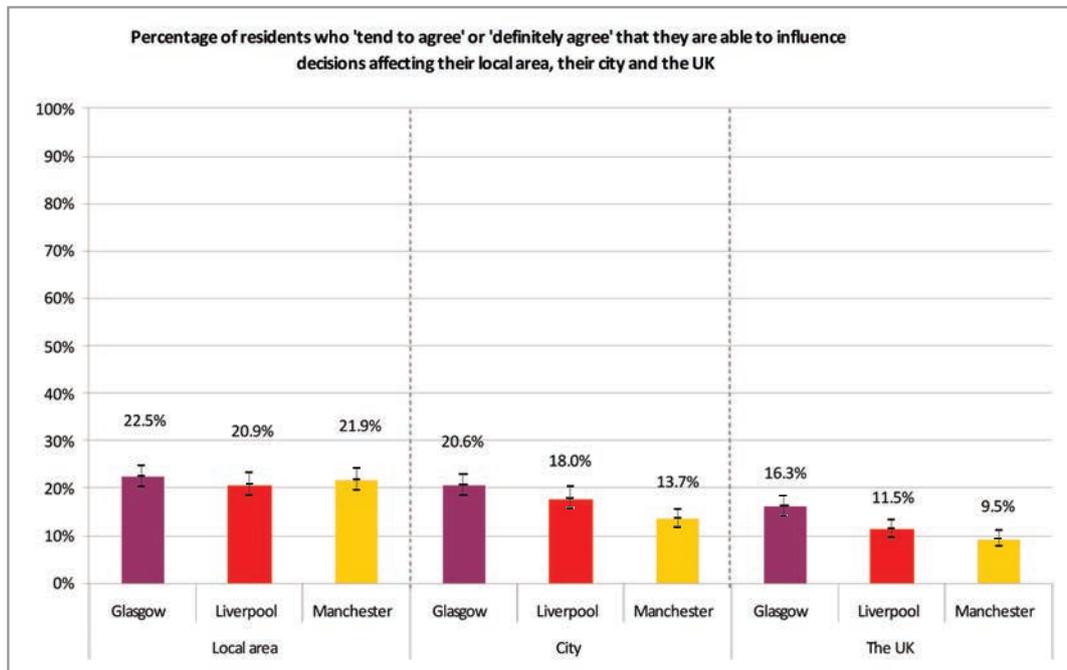
Figure 29



Relatively few respondents in each city said they felt able to influence decisions affecting their local area – 21% to 22% in each city ‘definitely agreeing’ or ‘tending to agree’ that they had any such influence – with even fewer believing they were able to influence decisions affecting their city or the UK as a whole. Analyses of these questions (included within the ‘political effects’ section of the questionnaire) are shown in Figure 30. Particularly few Manchester respondents felt they could influence city-level (14%) or UK-level (9.5%) decisions. A significantly higher percentage of the Glasgow sample (although still only 16%) felt able to influence decisions affecting the UK – the higher figure in Glasgow compared with Liverpool (11.5%) and Manchester (9.5%) possibly reflecting awareness of, including awareness of the potential impact of, the 2014 referendum on Scottish independence (although this is purely speculative). The statistical modelling generally confirmed the results shown in Figure 30: for example, after adjustment for all other factors, there were no significant differences between the cities in terms of perceptions of ability to influence local decisions, while Liverpool and Manchester respondents were significantly less likely than those in Glasgow to believe they could influence UK-level decisions. In all three models (local area, city and UK), the most important predictors were area deprivation (respondents from the most deprived areas being especially unlikely to believe they could influence decisions) and educational attainment (respondents educated to degree level were significantly *more* likely to feel they could influence decisions compared with those with no educational qualifications). Results of all the modelling analyses are presented in Appendix B.

(Note that Glasgow respondents were also asked about their perceived ability to influence decisions affecting Scotland. The percentage ‘definitely agreeing’ or ‘tending to agree’ that they could influence decisions was, at just 18%, fairly similar to the percentages agreeing they could influence local, city or UK decisions).

Figure 30



Similarly, across all three cities there was a very negative perception of local and UK governments in terms of the extent to which they are seen to be helping individuals, supporting communities, and undermining respondents’ cities. For example, only 12-14% of respondents across the cities said they believed that the current UK government’s policies are helping them as individuals, and only 17%-26% said the same of their local council’s policies. These are discussed in more detail in the next section of the report (political effects).

Social networks and support

A number of questions were asked in relation to respondents’ frequency of contact with friends, relatives and neighbours. In relation to *regular contact with neighbours* (Figure 31), *telephone contact with friends and relatives*, and *meeting up with relatives*, results for the Glasgow sample were either similar to, or slightly more positive than, those for the two English samples. However, alongside those in Manchester, the Glasgow sample had slightly less frequent *personal contact with friends* than those in Liverpool (Figure 32), while *social media contact with friends and relatives* appeared less frequent in Glasgow compared with Liverpool and, especially, Manchester (Figure 33).

Figure 31

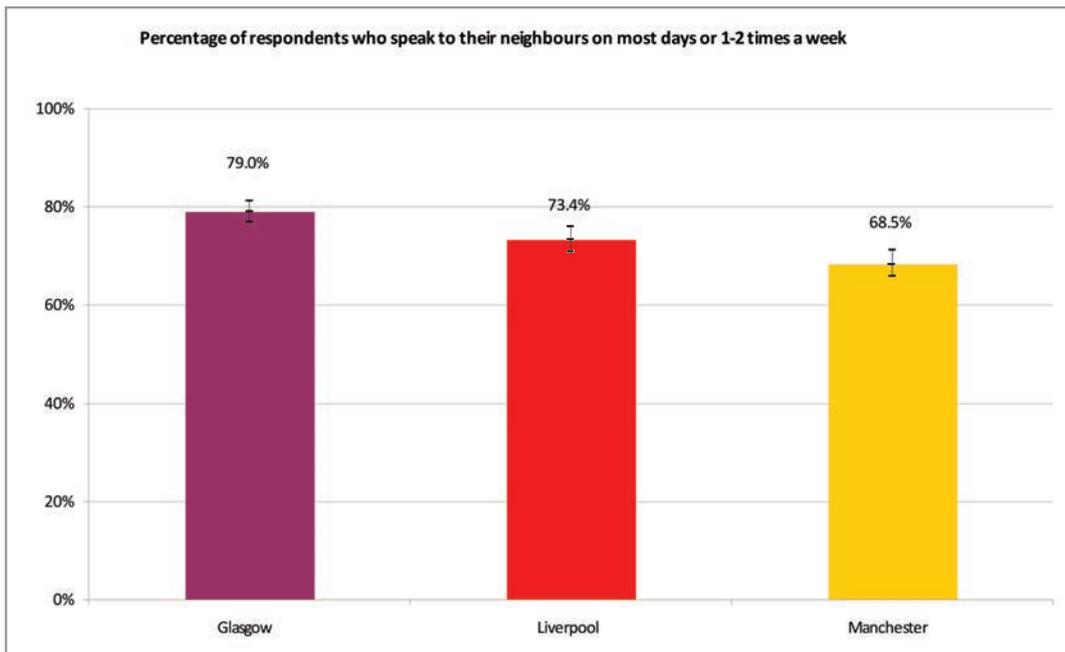


Figure 32

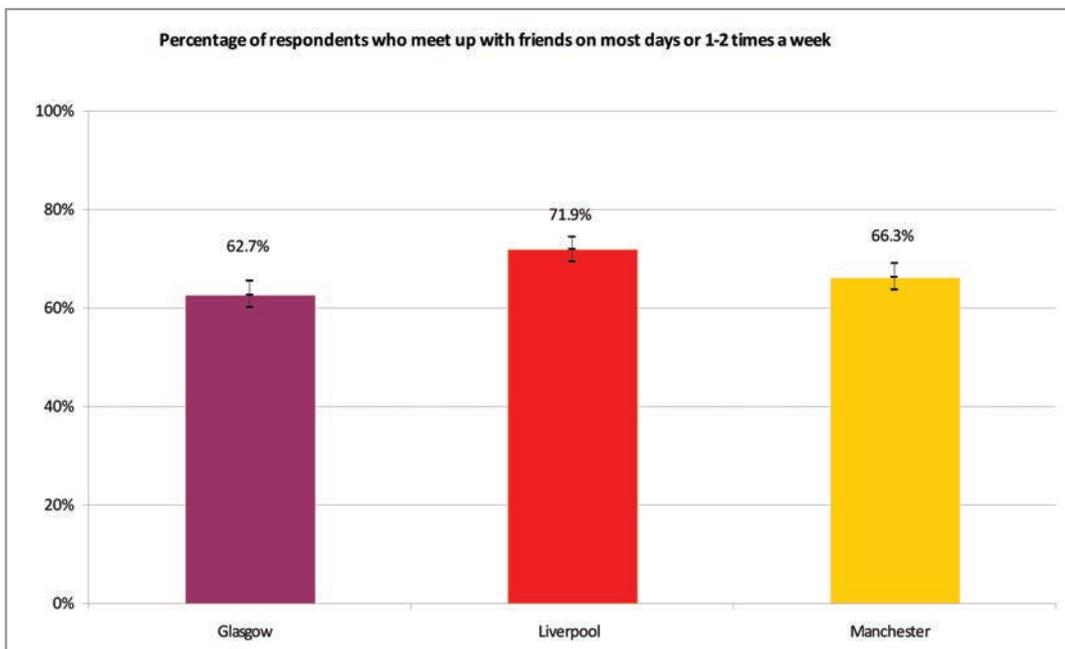
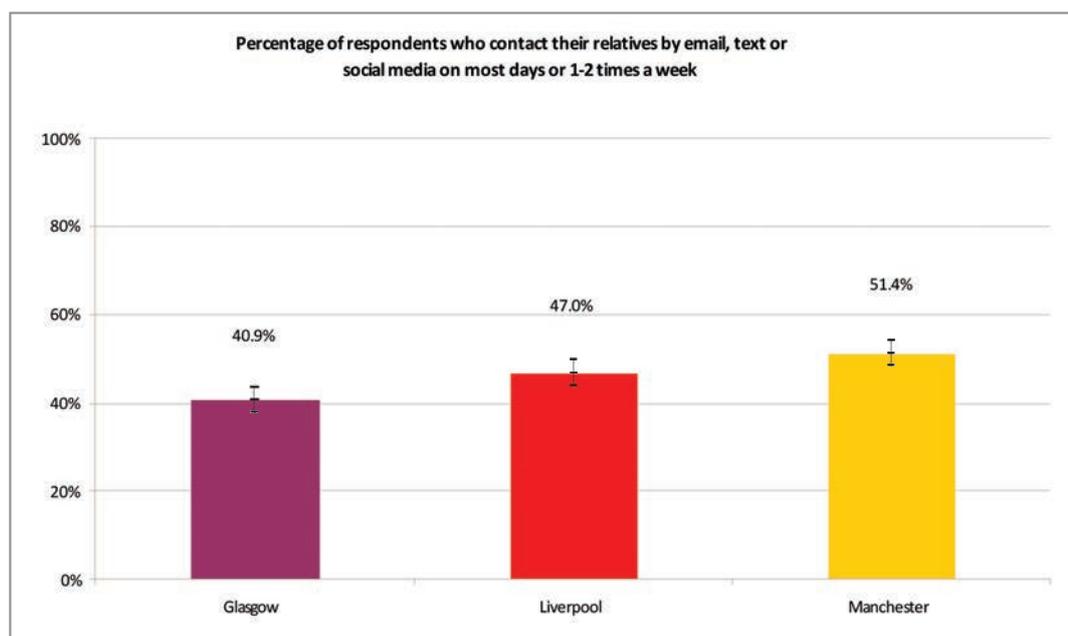


Figure 33



In terms of social support, respondents were asked how many people outside their home (e.g. friends, relatives and neighbours) they could ask for help in relation to: going to the shop for them if unwell; lending them some money for a few days; and giving advice and support in a crisis. Again probably reflecting the nature of the sample (in terms of having higher numbers of people who had been living in the area a relatively short time), significantly higher numbers of Manchester respondents reported that they had no one to ask for any of those kinds of help: 16% compared with 7% and 4% respectively in the Glasgow and Liverpool samples (Figure 34). This was true across all ages, both genders, and all area types (but especially for those living in the most deprived areas (Figure 35)). The statistical modelling analyses confirmed this: after adjustment for all other factors in the model, those in Manchester were twice as likely to have no one to turn to for help compared with those in Glasgow. In turn, however, Liverpool respondents were almost 40% less likely to have no one to turn to for help compared with those in Glasgow^{xxxi}.

^{xxxi} Among the Glasgow-only sample, the predictor (independent) variables significantly associated with likelihood of having no one to ask for help were: employment status (those who were unemployed, looking after home/family, and in education/training were all more likely to have no one to ask for help compared with those who were in employment); limiting long-term illness (LLI) (those with a condition that limited them 'a lot' were almost three times more likely to say they had no one to turn to for help compared with those with no LLI); and length of residence in the city: those who were probably long-term residents were significantly less likely to have no one to turn to for help.

Figure 34

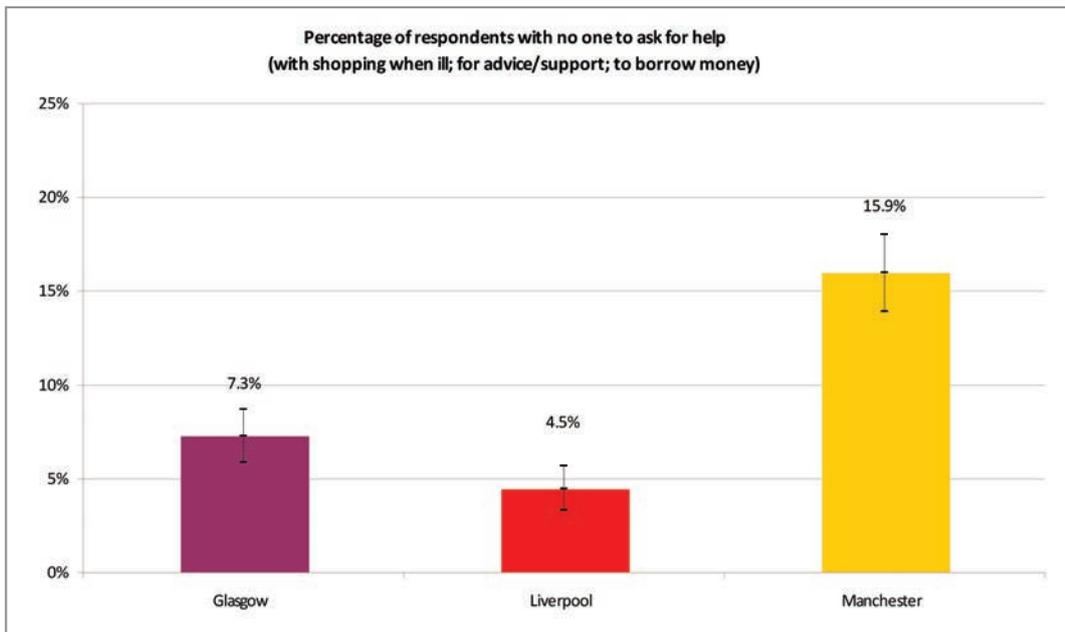
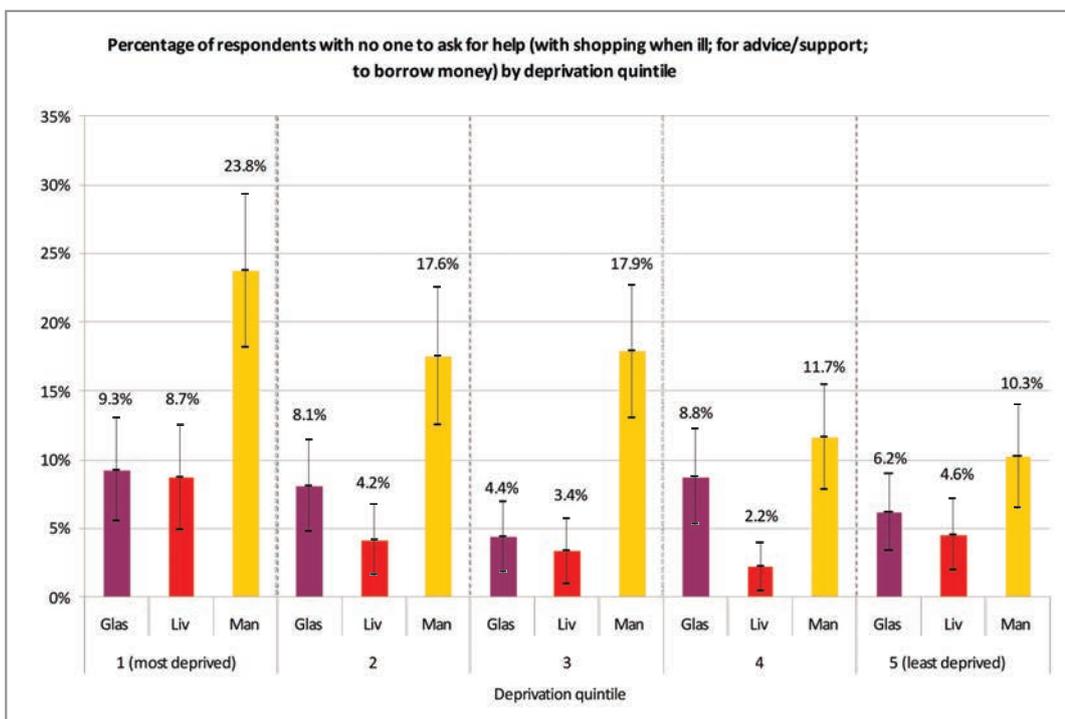


Figure 35



Social participation

Volunteering is a commonly used measure of social participation in studies of social capital, and indeed was referred to above as one of the four key components of the concept. The ONS question used in the survey asked whether participants had given any 'unpaid help to any groups, clubs or organisations' in the previous 12 months, with a wide range of options that could be selected: raising or handling money/taking part in sponsored events; leading a group or being member of a committee; organising or helping to run an activity or event; visiting people; befriending or mentoring people; giving advice/information/counselling; secretarial, administrative or clerical work; providing transport/driving; representing; campaigning; or other practical help (e.g. helping out at school or a religious group).

Figure 36 shows that only 7% of Glasgow respondents said they had volunteered in the previous year: less than half the equivalent figures for those in Liverpool (17%) and Manchester (15%). This stark difference is seen for both genders (Figure 37), all age groups (Figure 38), and most social classes (Figure 39). With regard to the latter, it is potentially noteworthy that the greatest relative differences are seen between those of higher, rather than lower, social class (and the same is true in relation to analysis by area deprivation (data not shown)).

Figure 36

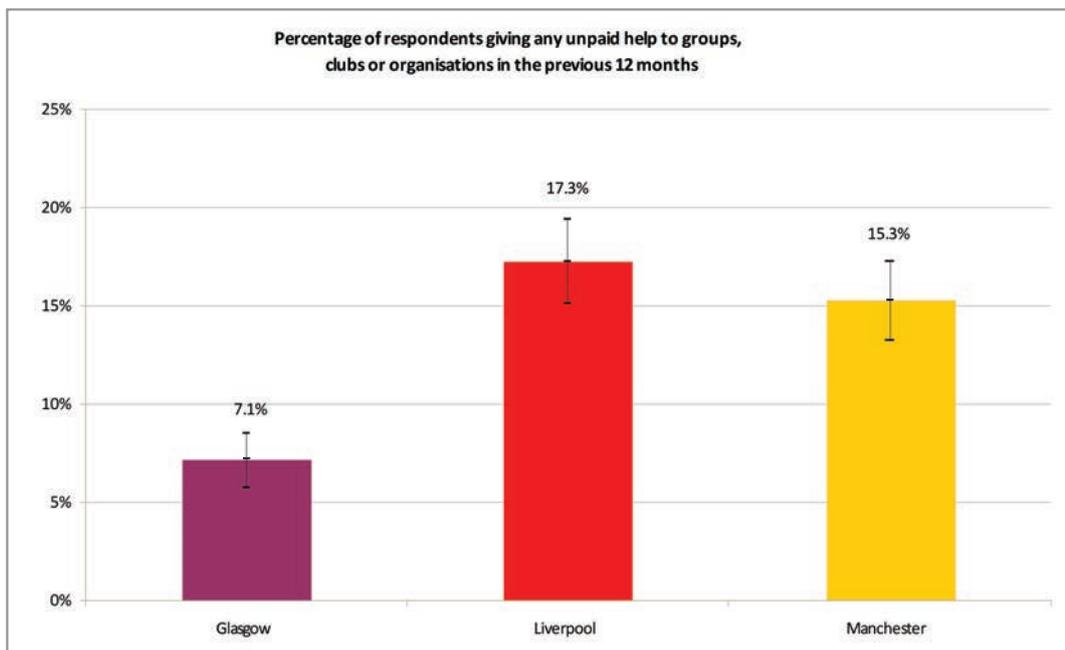


Figure 37

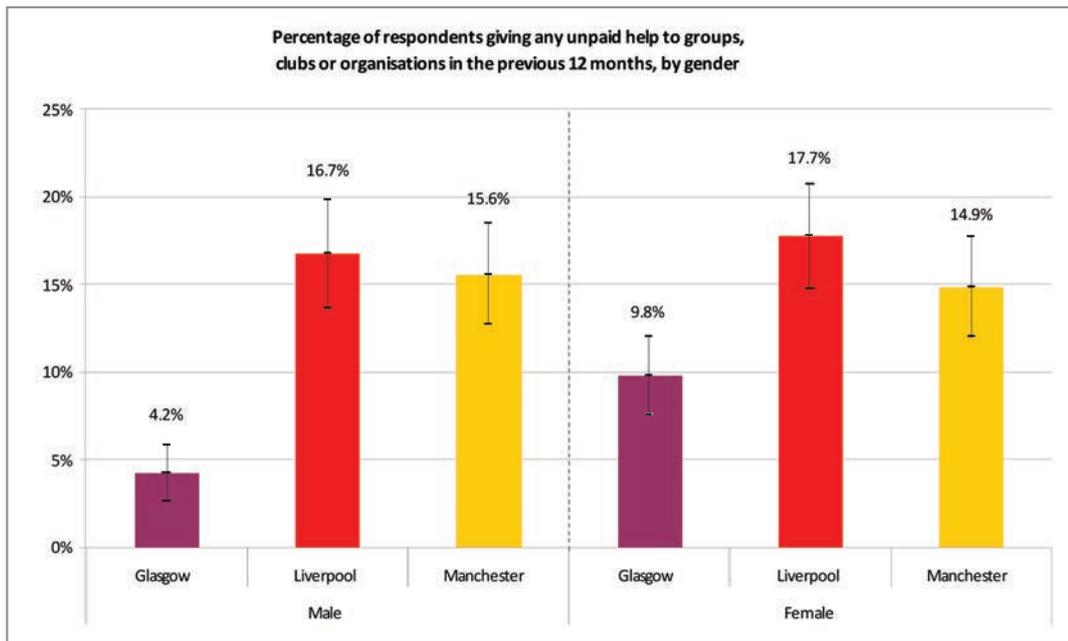


Figure 38

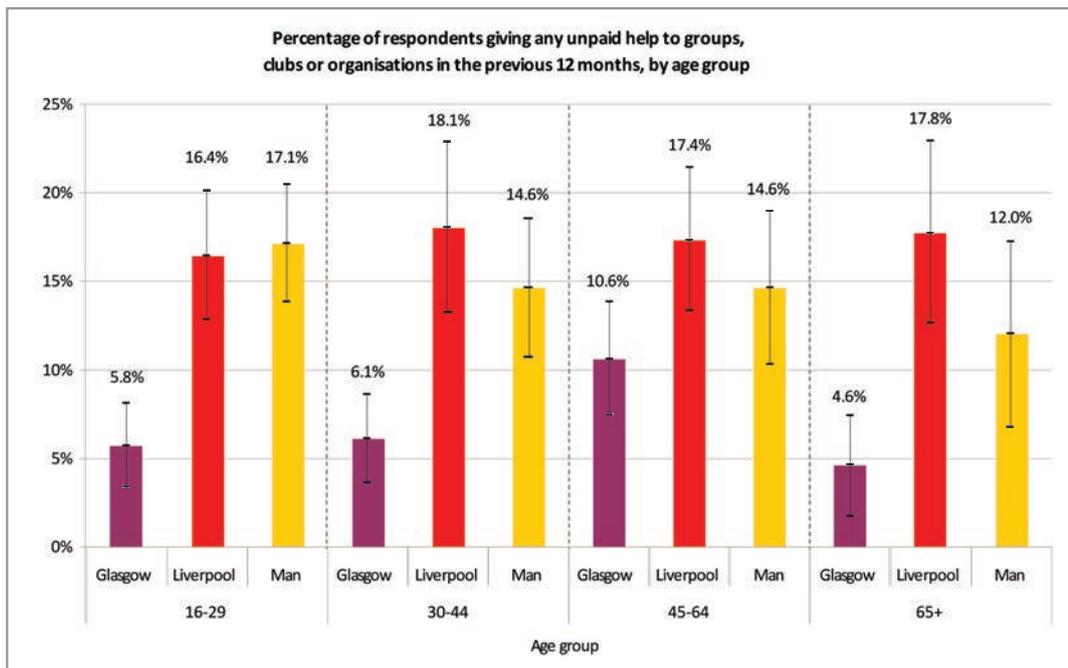
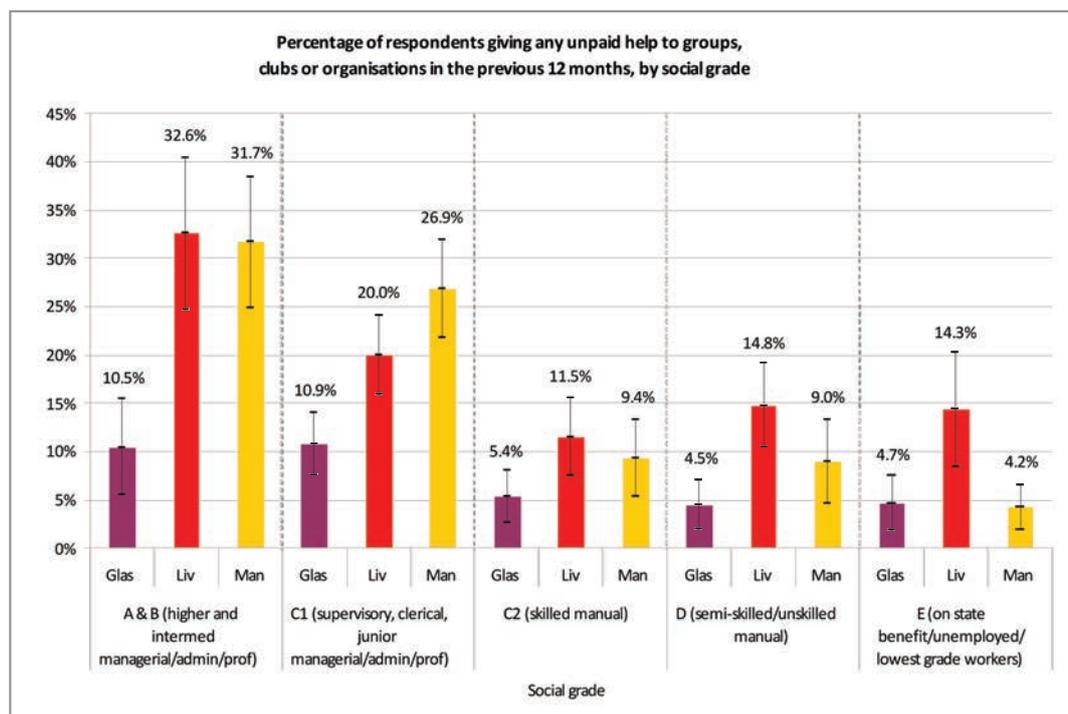


Figure 39



The statistical modelling analyses confirms these results: controlling for all other factors in the model (age, sex, ethnicity, social class, area deprivation, employment status, educational attainment, marital status, health status^{xxxii}), Liverpool and Manchester respondents were 2.6 and 2.5 times more likely to have volunteered in the previous 12 months than those in Glasgow^{xxxiii}. Models based on the Glasgow-only sample showed that predictive factors in relation to likelihood of having volunteered were: gender (females were more likely to volunteer than males), social class (those in higher ‘social grades’ being significantly more likely than those in lower grades), and health status (those in good health being more likely to volunteer than those in poor health).

As explained, *religious* social capital is also relevant to the concept of social participation. However, a significant caveat applies to these analyses in that the survey question asked about *religious affiliation* rather than *participation*^{xxxiv}. This is an important distinction as the benefits of religious social capital relate to active participation, and not everyone affiliating themselves with a particular religion will attend regular religious services: the notion of religion as a ‘badge’ rather than necessarily a belief has been highlighted by some authors¹³³⁻¹³⁶.

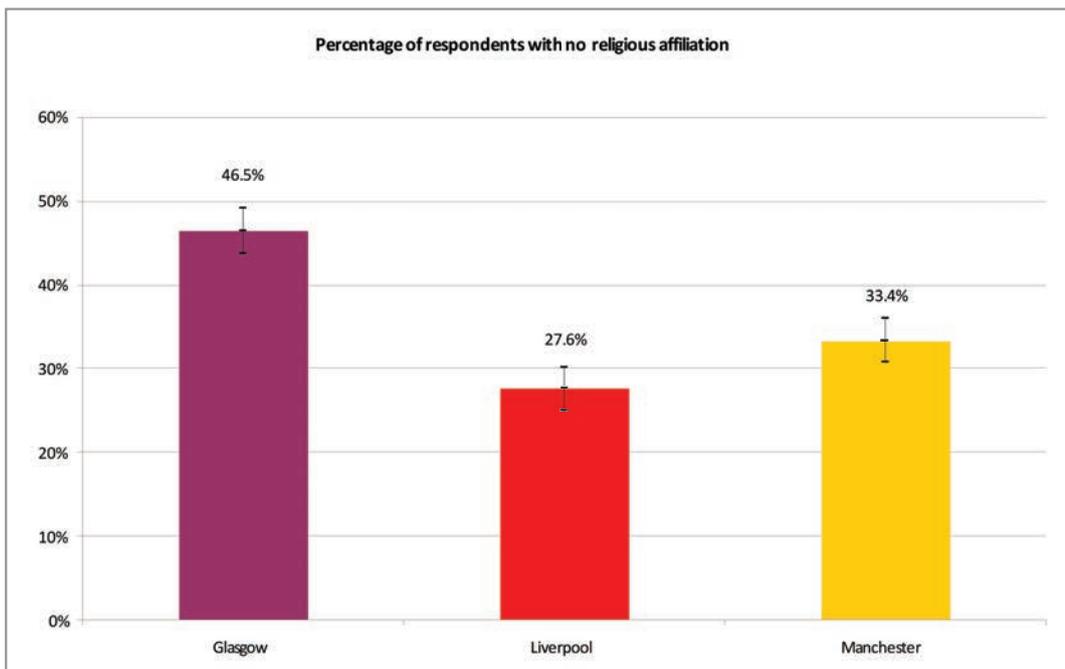
^{xxxii} Both self-assessed health and limiting long-term illness.

^{xxxiii} Odds ratios: Liverpool: 2.6 (95% confidence intervals 2.0, 3.4), $p < 0.0001$; Manchester: 2.5 (95% confidence intervals, 1.9, 3.3), $p < 0.0001$.

^{xxxiv} The survey used the same question as that used in the Scottish Census: ‘What religion, religious denomination or body do you belong to?’ (with a list of 12 possible answers provided).

Nonetheless, in the context of social capital and its links to population health, it is still of potential interest that religious affiliation is significantly lower among the Glasgow sample compared with those in Liverpool and Manchester. Figure 40 shows that the percentage of the Glasgow respondents who stated they had no religious affiliation was 46.5%, compared with 33% in Manchester and 28% in Liverpool. As with volunteering, this difference between the Glasgow and English samples was seen in analyses by age (where a clear gradient was visible across all three cities, but with the percentage of respondents with no affiliation in Glasgow higher in every group), gender, area deprivation and social class (Figures 41-44). The statistical modelling analysis confirms that after adjustment for other factors in the model, people in Liverpool and Manchester were 62% and 40% respectively less likely to state they had no religious affiliation^{xxxv}. Among the Glasgow-only sample, the characteristics of the sample that were significantly associated with likelihood of having no religious affiliation were age, gender, social class, ethnicity (members of ethnic minority groups were much less likely to have no affiliation) and marital status (those who were married or in a civil partnership were also less likely to have no affiliation than those who were single).

Figure 40



^{xxxv} Odds ratios: Liverpool: 0.38 (95% confidence intervals 0.31, 0.46), $p < 0.0001$; Manchester: 0.60 (95% confidence intervals 0.5, 0.72), $p < 0.0001$.

Figure 41

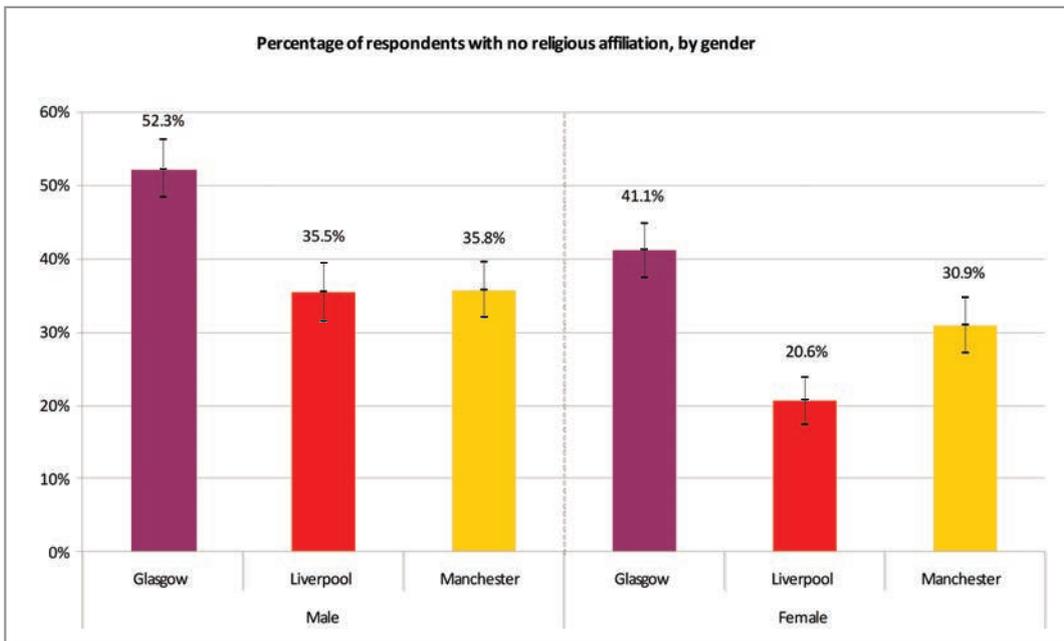


Figure 42

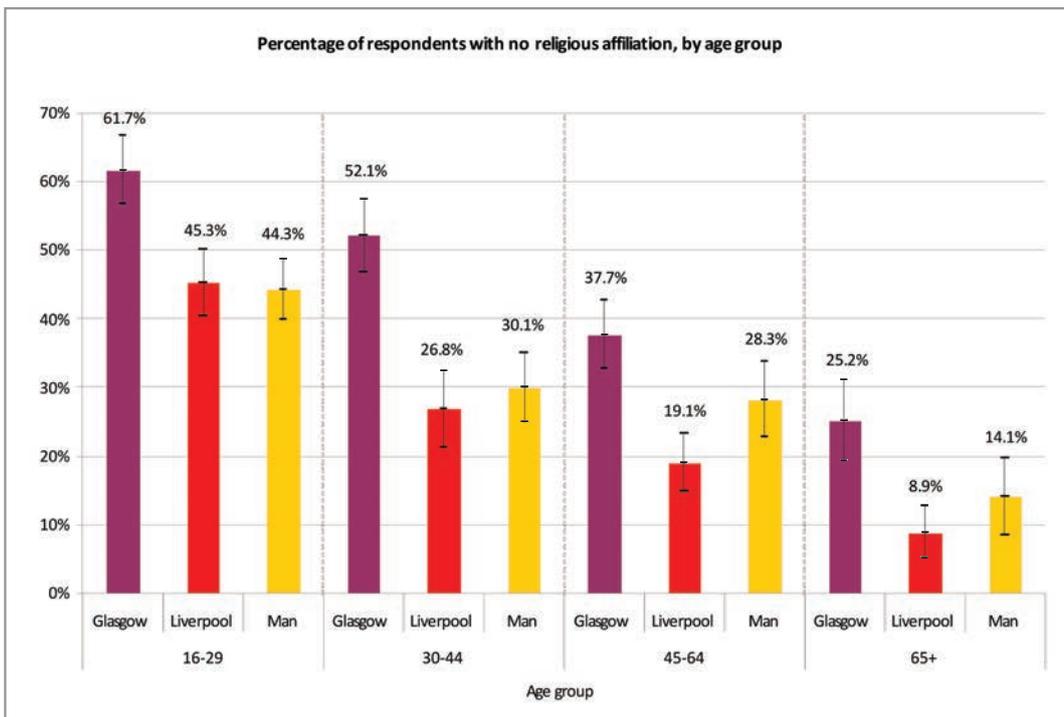


Figure 43

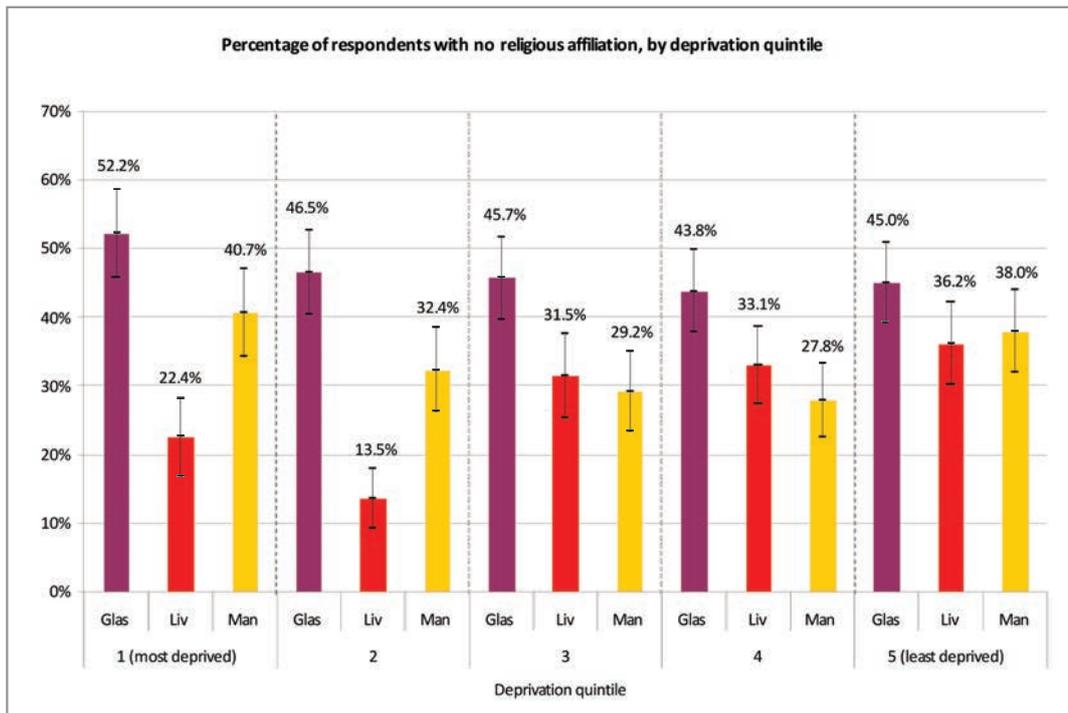
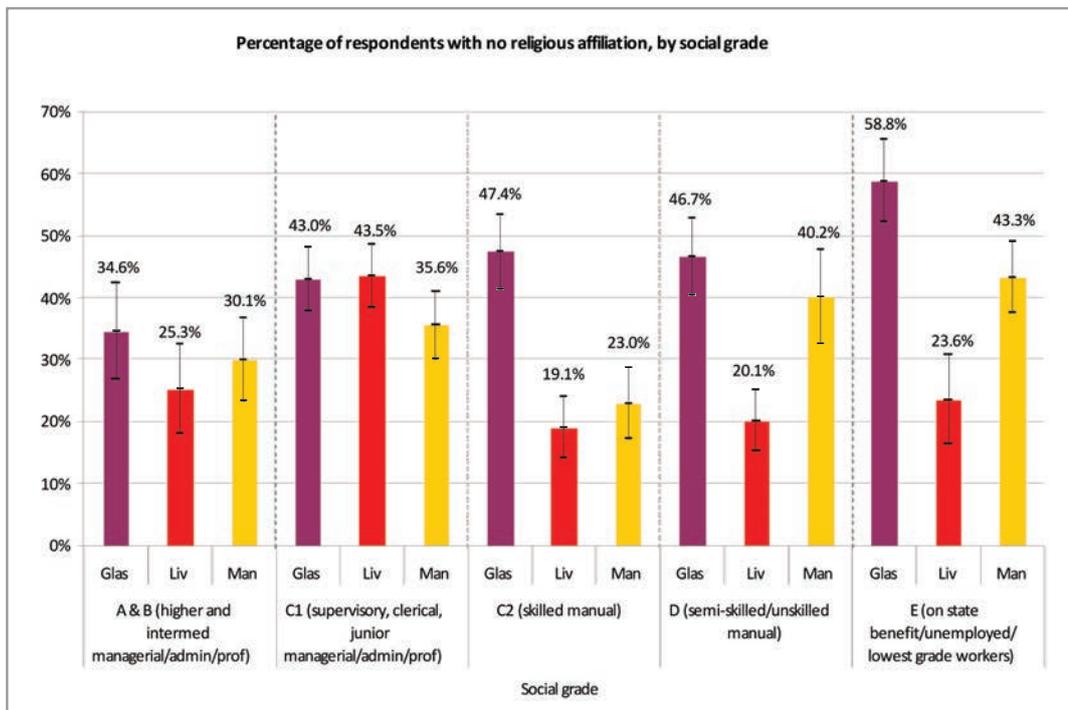


Figure 44



Reciprocity and trust

The fifth and final section compares the notions of reciprocity and trust, using a number of different survey questions.

In relation to reciprocity – but also relevant to the more general heading of *views on the local area* – respondents were asked to describe their neighbourhood in terms of whether it was a place where ‘people do things together and try to help each other’ or instead whether it was one in which ‘people mostly go their own way’. There were no significant differences between the cities in terms of the numbers of respondents selecting the latter category, with between 26% and 29% believing this to be the case (Figure 45), and this is confirmed by the statistical modelling analyses. However, a significantly higher percentage of the Liverpool (30%) sample believed their neighbourhood to be one with high levels of reciprocity (i.e. where ‘people do things together and try to help each other’) compared with the Glasgow sample (22%), which in turn was significantly higher than the figure for Manchester (16%) (Figure 46). These differences between the cities were again confirmed by the statistical models: compared with those in Glasgow, and adjusting for the various characteristics of the samples, those in Liverpool were 56% *more* likely to assess their neighbourhood in these terms, while Manchester respondents were 31% *less* likely to do so^{xxxvi}. This perception varied by age and gender (older and female respondents were more likely than younger and male respondents to describe their neighbourhood in terms of this measure of reciprocity), with the modelling analyses showing that this positive view was also shared by those living in the less, rather than more, deprived areas, those who were a member of a minority ethnic group and those who were likely to have lived in their city for a long time.

^{xxxvi} Odds ratios: Liverpool 1.56 (95% confidence intervals 1.29, 1.88), $p < 0.0001$; Manchester 0.69 (95% confidence intervals 0.56, 0.86), $p < 0.01$.

Figure 45

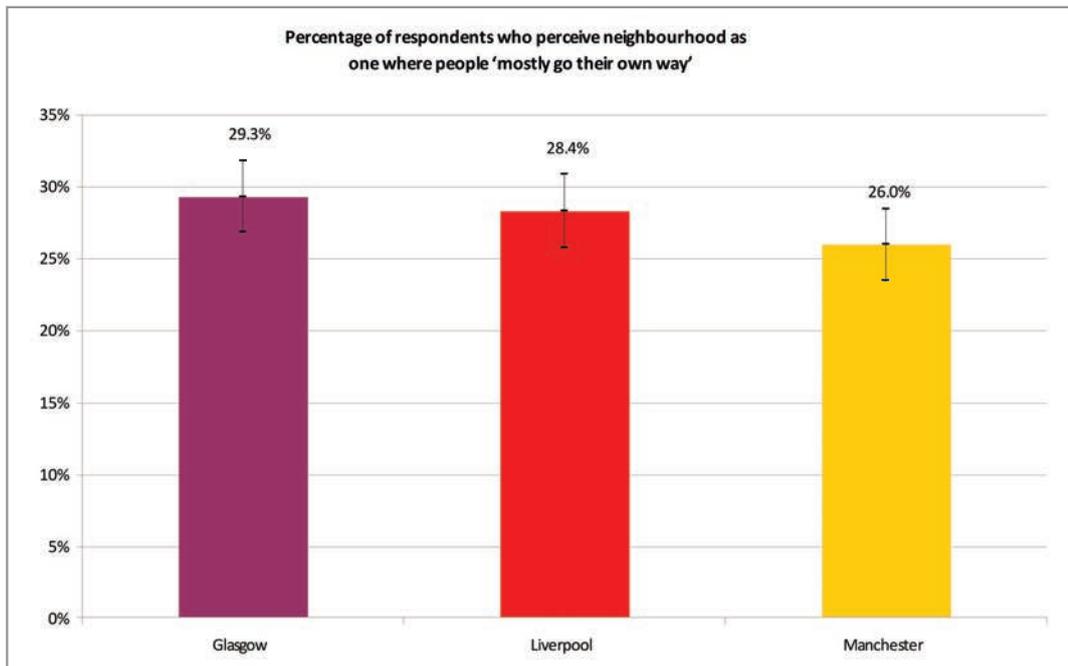
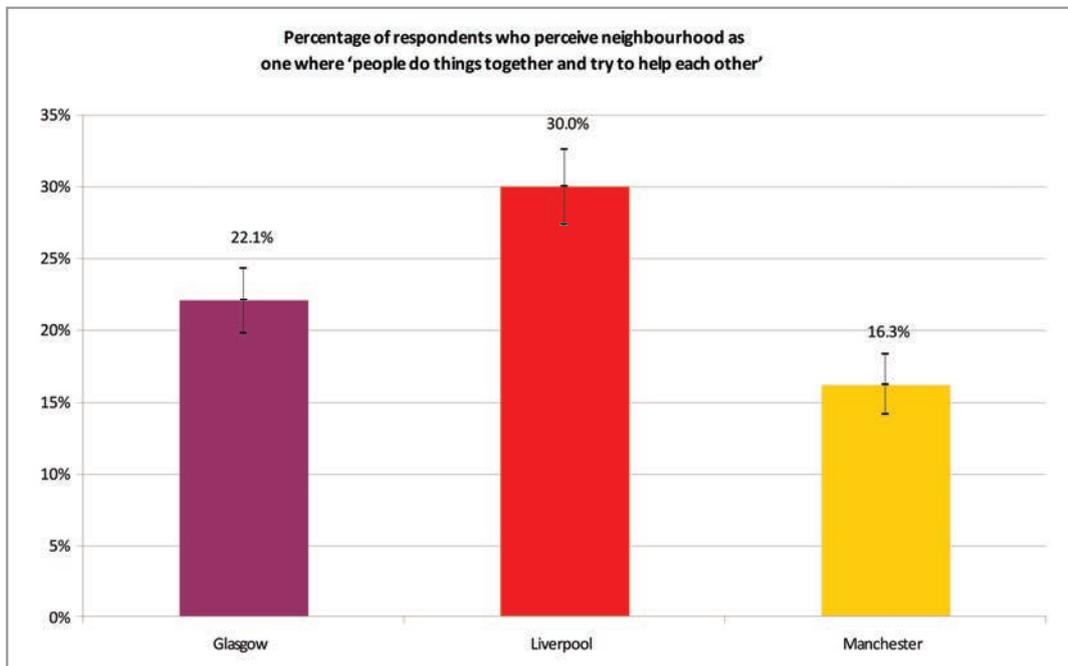
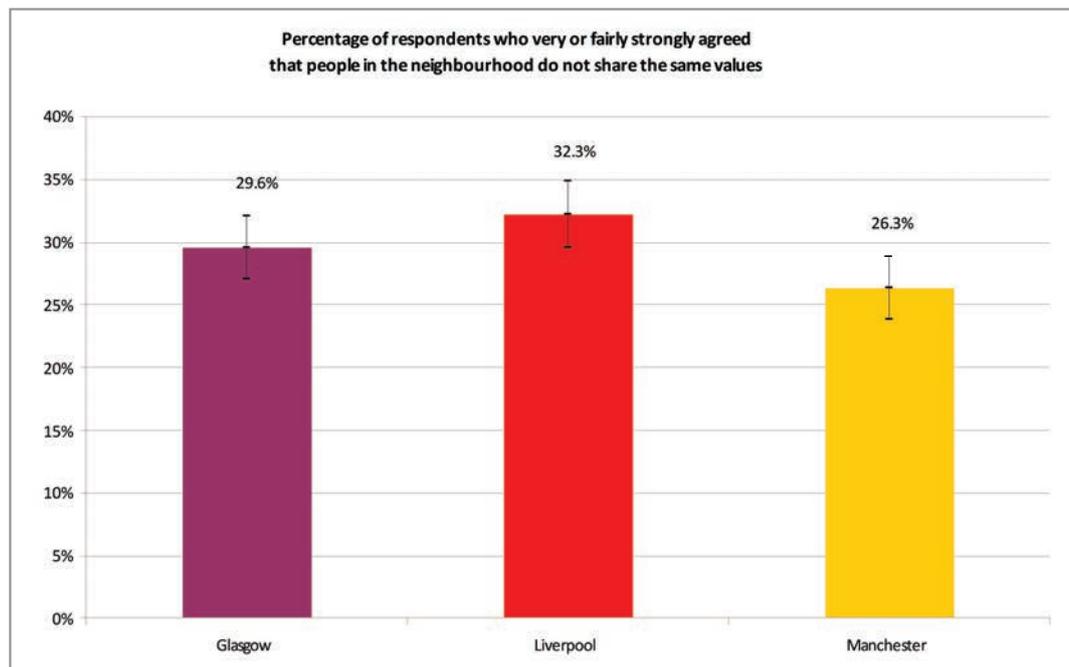


Figure 46



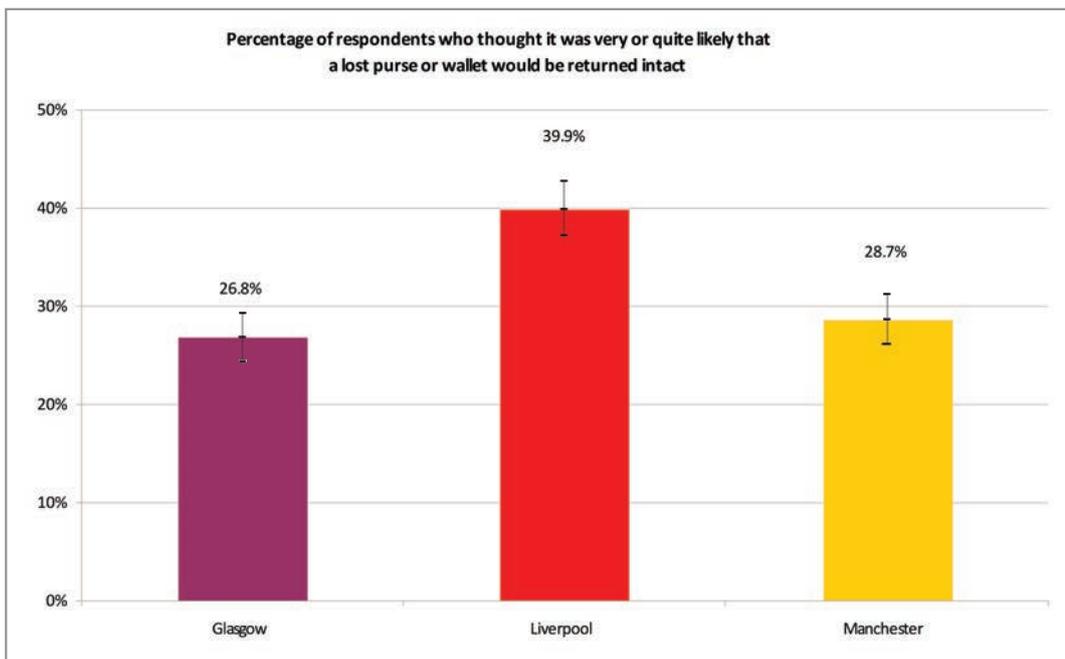
Participants were also asked to what extent they agreed with the statement that people in their neighbourhood 'do not share the same values'. As Figure 47 shows, a minority of respondents in each city thought this to be the case: 26%-32% of the three samples agreed 'very' or 'fairly strongly' with this statement, and the statistical modelling confirmed that there were no significant differences between the cities in this regard (after adjustment for other factors).

Figure 47



Reciprocity was also assessed by a question which asked how likely it would be that a lost wallet or purse (containing their address details) would be returned intact. As Figure 48 shows, the percentage of respondents believing that this would be a 'very likely' or 'quite likely' outcome was significantly lower in Glasgow (27%) compared with Liverpool (40%), although similar to the figure for Manchester (29%). Similar patterns were seen in the analyses by gender, age, and area type, with gradients evident in the latter two analyses (i.e. the numbers agreeing increasing with age, and in less deprived compared with more deprived areas). The modelling analyses confirmed that, adjusting for all other factors in the model, respondents in Liverpool were 73% more likely to agree than respondents in Glasgow that a wallet/purse would be returned intact (with no significant differences between Glasgow and Manchester participants).

Figure 48



Respondents were also asked about whether they ever exchanged 'small favours' (such as leaving a key to let in a repair man, feeding pets or picking up items from a local shop) with those who lived near them. As with the question on the return of a lost wallet or purse, reciprocity in these terms was lower in Glasgow compared with Liverpool, but not compared with Manchester. As Figure 49 shows, 47% of respondents in Glasgow said they exchanged such favours with neighbours compared with 64% in Liverpool and 42% in Liverpool. In addition, Figure 50 shows that among those who reported exchanging favours, the average number of people with whom they did so was, on average, higher in Liverpool (mean = 2.9) than in Glasgow (2.3) and Manchester (2.1).

Figure 49

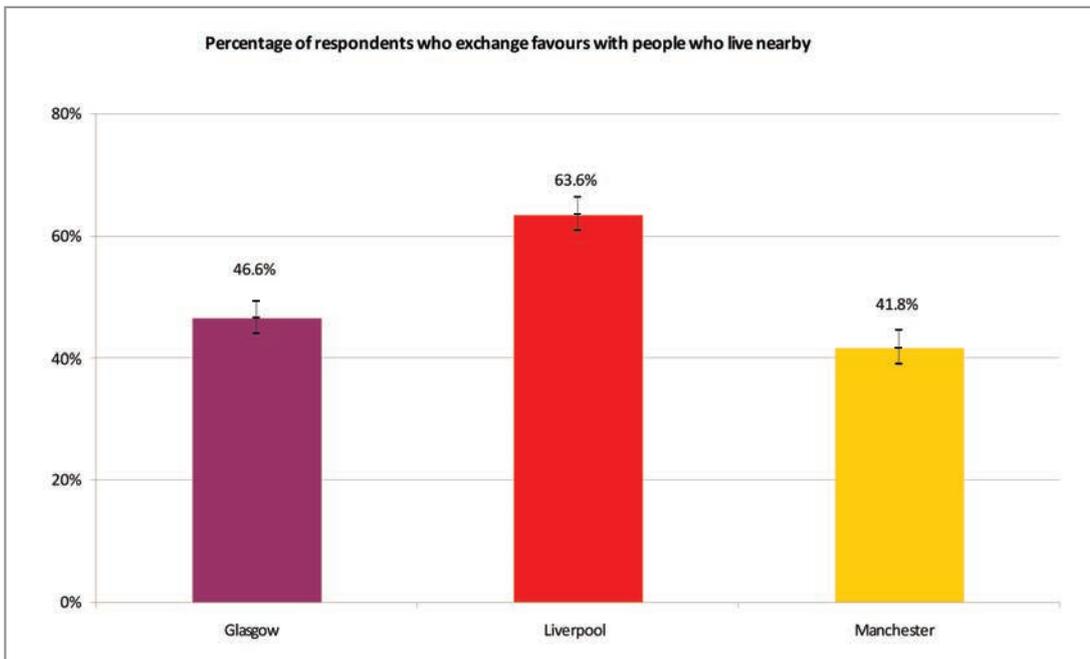
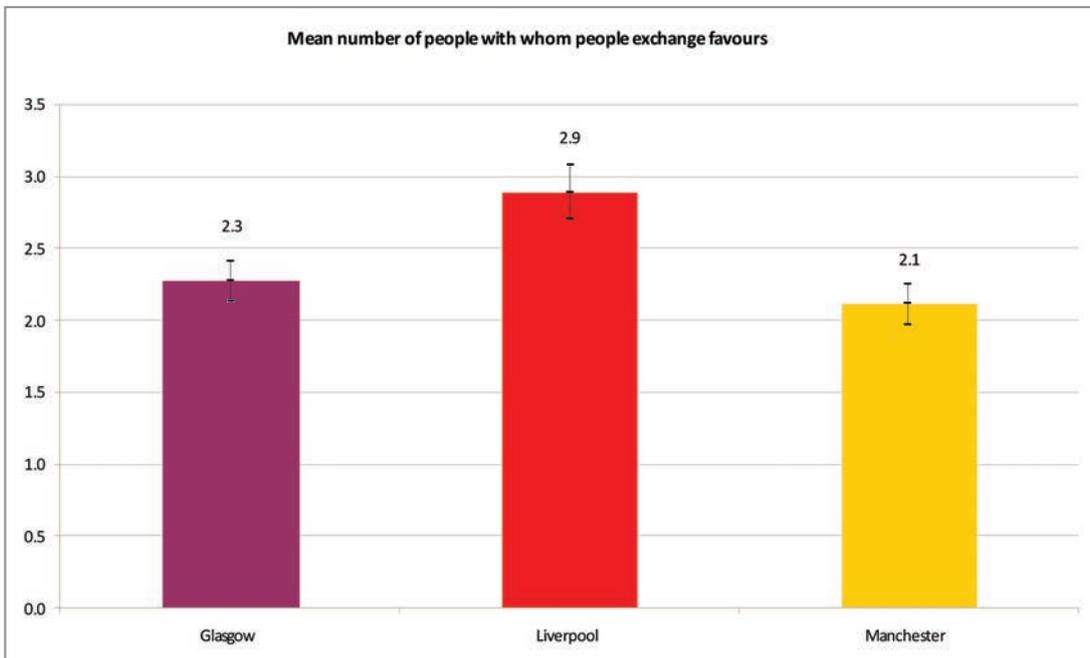


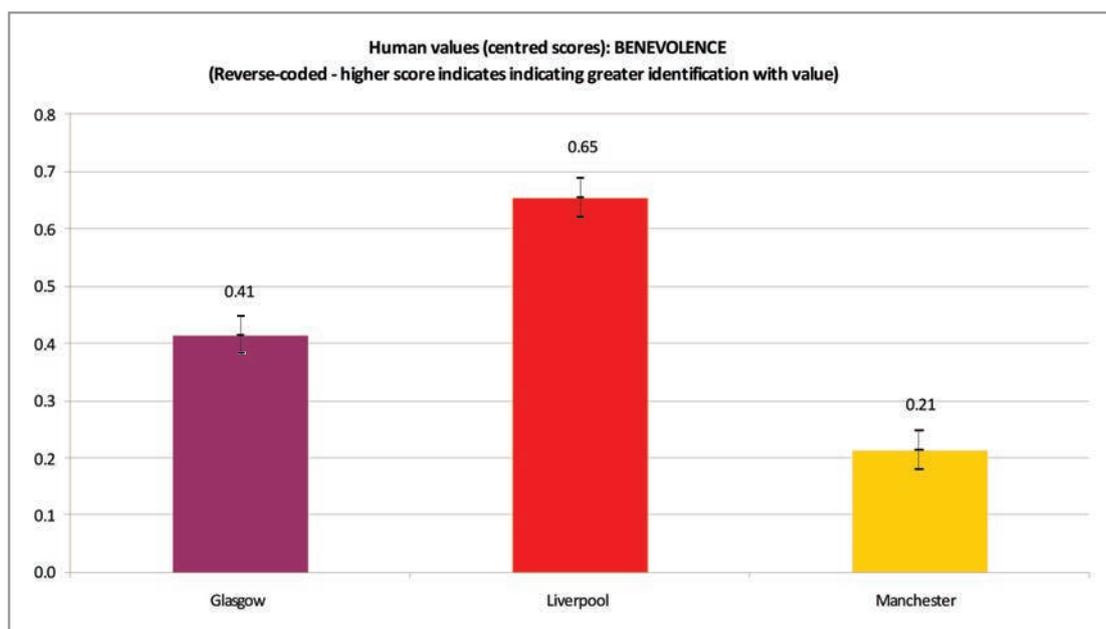
Figure 50



Aspects of reciprocity are included within the 'benevolence' value of Schwartz's Human Values Scale described earlier. In this context, benevolence is based on two statements, in relation to which respondents are asked to rate the extent to which they are similar to the person described.

The statements (using here, as elsewhere in the report, the male version of the question^{xxxvii}) are: *It is important to him to be loyal to his friends. He wants to devote himself to people close to him;* and *It's very important to him to help the people around him. He wants to care for their wellbeing.* Figure 51 shows that, as defined in these terms (and echoing the results from some of the other reciprocity-related measures), benevolence among the Glasgow sample was significantly lower than among those in Liverpool, but higher than among those in Manchester, differences that were also apparent in comparisons of sub-groups of the samples (age, gender, area type and so on)^{xxxviii}. These city differences were confirmed by the modelling analyses, which also showed that the factors that significantly predicted differences in the benevolence score included: gender (higher among females); age (benevolence rising in line with increasing age); social class (lower among those classed as 'unemployed, on state benefits or 'lowest grade workers'); educational attainment (higher among those with degree level qualifications); and employment status (higher scores being associated with those who were sick or disabled). Among the Glasgow-only sample, however, only age and limiting long-term illness (LLI) were significant predictors, with older age groups and those with an illness that limited their daily activities 'a lot' being associated with a higher average benevolence score than the youngest age group and those with no LLI respectively.

Figure 51



^{xxxvii} For simplicity, the 'male' versions of the statements are shown here. Female respondents were obviously presented with a female version of the statements. The full questionnaire is included within Appendix E.

^{xxxviii} Note that in Figure 51, as in all the analyses of Human Values Scale scores, the scores have been adjusted to allow for scale use differences by individuals and groups. This follows the guidance of the European Social Survey¹³⁷, and of Shalom Schwartz himself, the author of the Human Values Scale¹³⁸. Scores are also reverse-coded to aid interpretation: as Appendix E (full questionnaire) shows, options that can be selected by respondents for this scale range from 1 ('very much like me') to 6 ('not at all like me'); scores are therefore reverse-coded so that the higher the score, the more associated with the value a participant's answer is.

Exploring potential reasons for

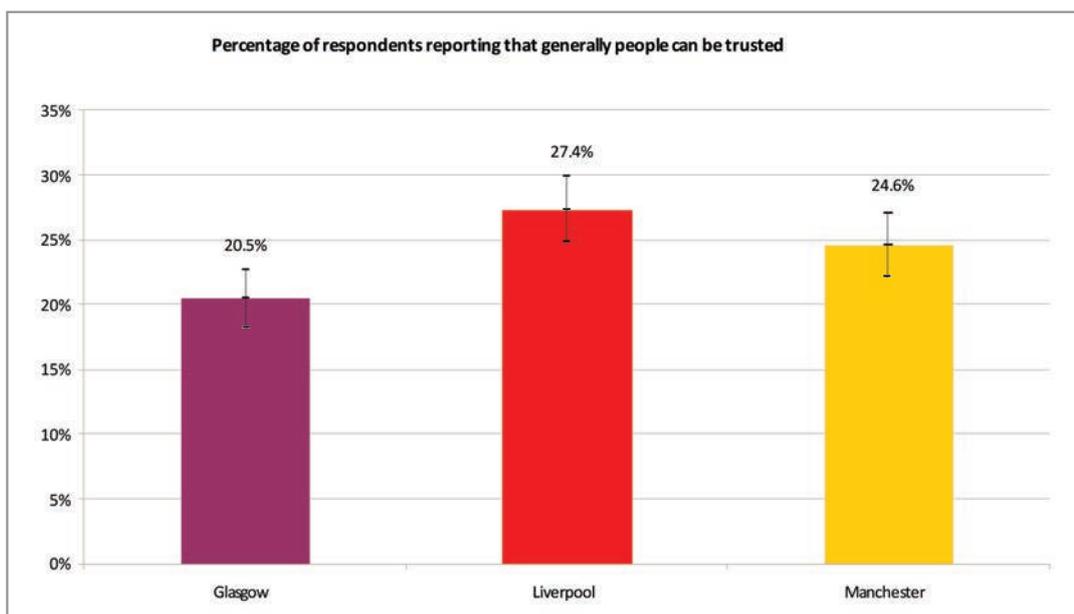
Glasgow's 'excess' mortality

Results of a three-city survey of Glasgow, Liverpool and Manchester

There is an overlap, highlighted by some commentators¹³⁹, between Schwartz’s value of *benevolence* and his value of *universalism*. The latter is discussed in more detail in Section 5.6 regarding the hypothesis of ‘different human values’. However, it is worth pointing out here that analyses showed the value of universalism to be significantly *less* associated with the Glasgow sample than with those in Liverpool and Manchester, supporting further the evidence for differences between the cities on some aspects of social capital-related concepts.

There is an obvious overlap between the notion of reciprocity, as measured by questions such as that relating to the return of a wallet, and the notion of trust. Two additional questions were asked specifically about trust. First, respondents were asked whether they believed that ‘generally speaking’ most people can be trusted, or whether they believed that you can’t be too careful in dealing with people. Figure 52 shows that a significantly lower percentage of respondents in Glasgow (20.5%) compared with those in Liverpool (27%) and Manchester (25%) believed that most people could be trusted. The statistical modelling analyses confirmed the significant differences between the cities^{xxxix}, and the same differences were seen for both genders, in most age groups (especially the youngest) and in most area types (especially the *least deprived*)^{xl}.

Figure 52

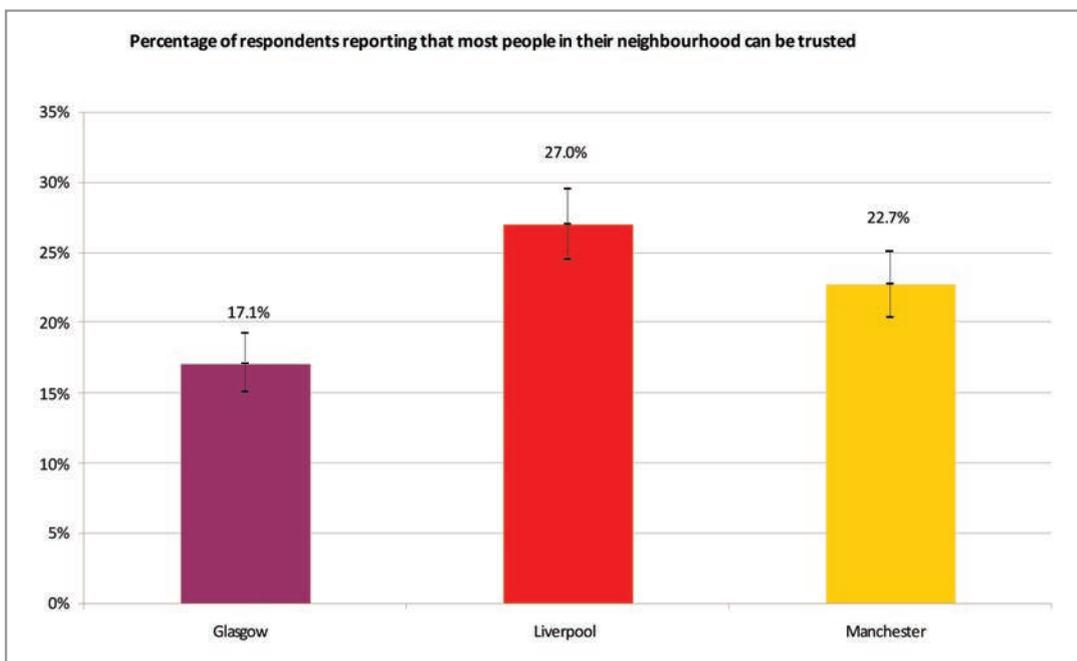


^{xxxix} Respondents in Liverpool were 37% (1.37 (1.14-1.66), $p < 0.01$) more likely to state that ‘most people can be trusted’ compared with respondents in Glasgow; those in Manchester were 32% (1.32 (1.09-1.59), $p < 0.01$) more likely.

^{xl} In the Glasgow-only modelling, higher levels of trust were significantly associated with educational attainment (those with degree level qualification were more likely to state that most people could be trusted than those with no educational attainment) and with marital status (those who were married or in a civil partnership were much more likely to be classed as trusting in this regard than those who were single).

The second question related to the more specific notion of trust in people in the neighbourhood. As Figure 53 shows, levels of such trust were again significantly lower in Glasgow (only 17% of respondents stated that ‘most people in their neighbourhood could be trusted’) compared with the two English cities (27% and 23% for Liverpool and Manchester respectively). These differences between the cities were also clearly evident from the modelling analyses, with the fully-adjusted analysis showing that Liverpool and Manchester respondents were, respectively, 71% and 45% more likely to believe that most people in the neighbourhood could be trusted^{xii}. Figures 54 to 56 show that the differences between the cities were also true when analysed by gender, age and area type (with, again, the clearest differences evident in the *least* deprived quintiles).

Figure 53



^{xii} Odds ratios Liverpool 1.71 (95% confidence intervals 1.4, 2.09), $p < 0.0001$; Manchester 1.45 (95% confidence intervals 1.18, 1.78), $p < 0.001$.

Figure 54

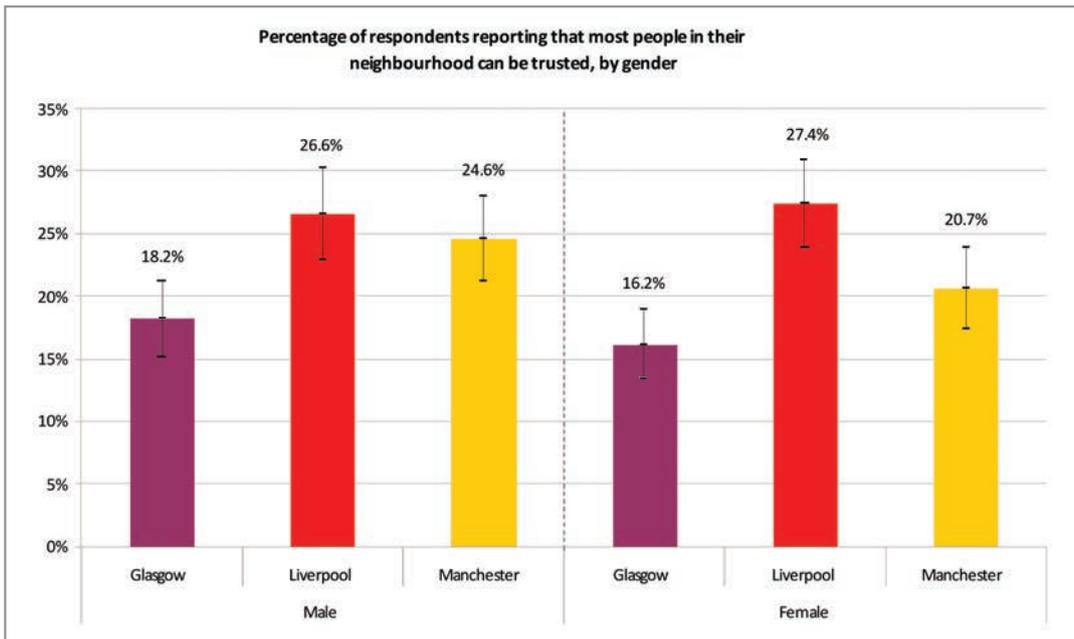


Figure 55

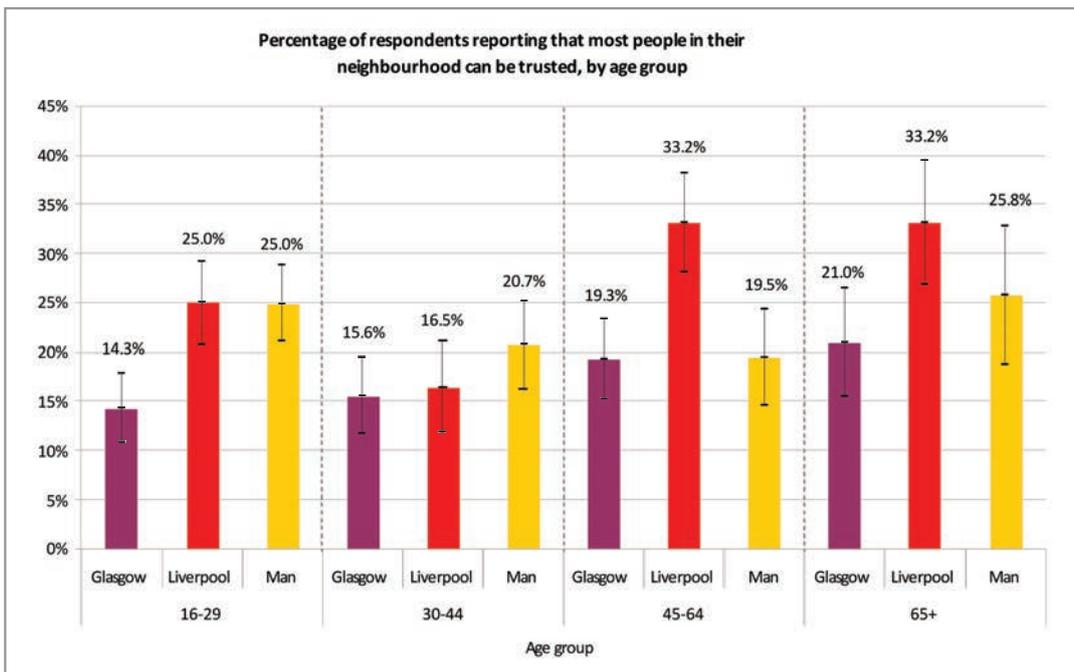
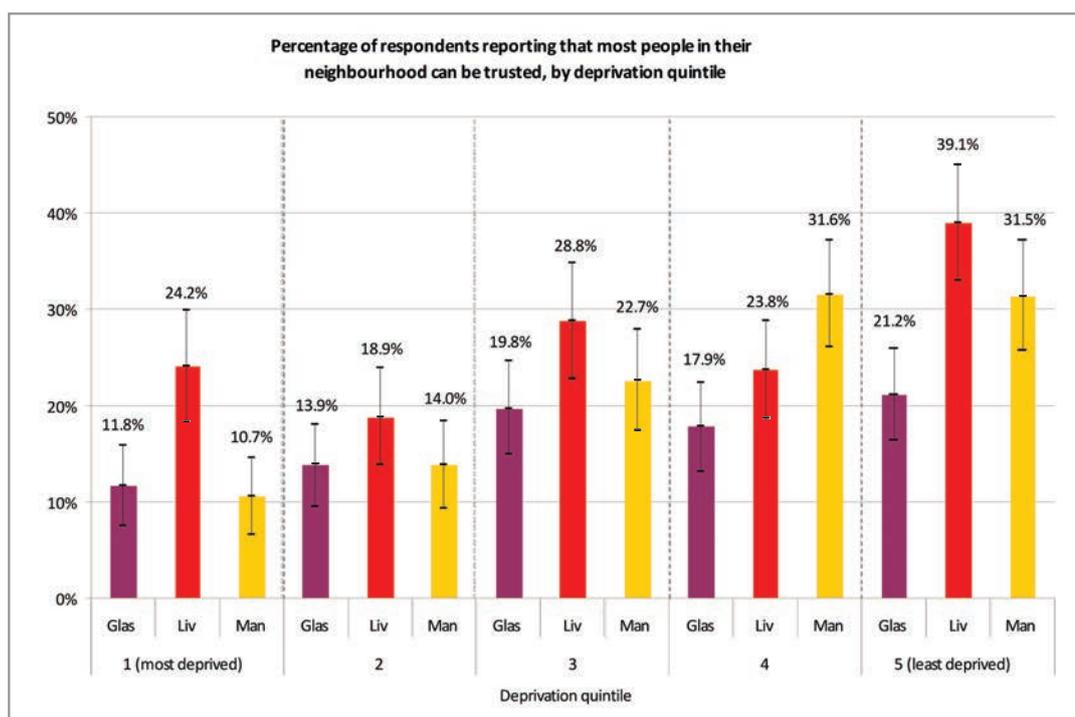


Figure 56



The Glasgow-only statistical modelling showed that factors associated with the likelihood of stating that people in their neighbourhood could be trusted included respondent social class (those in socioeconomic groups D/E were less likely to report trust than those in A and B) and employment status (those in employment/training and looking after home and family, were less likely to report such trust).

Note that some additional questions on trust are included in the next section of the report (which considers the ‘political effects’ hypothesis). However, as they relate to trust in the 1980s rather than the present day, they are considered within that section rather than this.

Comparisons with other data

As stated earlier, social capital has not previously been measured comparably across these three cities. More generally, there is very little available data for elsewhere in the UK with which the results of our data analyses can be compared. In relation to **views on the local area**, the Scottish Household Survey (SHoS)¹⁴⁰ includes a number of relevant questions; however, they are worded quite differently and not, therefore, comparable. They ask about whether or not issues (such as graffiti) are ‘common’ rather than (as the ONS questions put it) being ‘problems’, which represents a different perception. Some of the same ONS questions are included in the Health Survey for England¹⁴¹: however, city-level measures cannot be obtained from that survey. Similarly, in relation to **civic participation**, there are no other data that

offer meaningful comparisons for any of the three cities. The NHS Greater Glasgow Health & Wellbeing (GGHWB) Survey¹⁴² used to ask a question about whether participants had taken any action to solve a local problem: however, the question related to the previous three years, rather than (in the case of the ONS question used here) the previous 12 months. Nonetheless, the GGHWB data do at least confirm the general low levels of participation in the city: for example data from the 2002 survey show that for the wider Greater Glasgow area (rather than City of Glasgow local authority area) and over a three year period, only 11% of respondents said they had taken any such action¹⁴³. There are no directly comparable measures of **social networks and support** for the three cities, and the same is generally true of measures of **social participation**: the SHoS does include a detailed question on volunteering, but it includes a much broader set of categories from which to choose from compared with the ONS question. As a result, analyses of SHoS data for Glasgow show a higher total percentage of volunteers than that recorded in this three-city survey. However, it seems likely that had that broader set of categories been used for this (three-city) survey, the same relative differences would have resulted. Indeed, SHoS data for 2008 show volunteering rates for Glasgow to be significantly lower than those of the other main Scottish cities¹⁴⁴. Comparative data on religious affiliation are, however, available from the census and they confirm the significantly lower rates of affiliation in Glasgow compared with the two English cities^{xiii}. Finally, in relation to **reciprocity and trust**, the same question on the likelihood of the return of a lost wallet or purse is included within the General Lifestyle Survey. This cannot provide city-level data, but comparisons between those national data and the three-city survey suggests that reciprocity (as measured by this question) is likely to be much lower in all three cities than across Great Britain as a whole given that there is a deprivation gradient associated with these kind of measures and Glasgow, Liverpool and Manchester are the three most deprived cities in the UK^{xiii}. Similarly, the British Social Attitudes Survey (BSAS)⁶⁴ asks the same ONS question about whether people in general can be trusted, and again comparisons between this data source and the three-city survey suggest levels of trust are low in the three cities compared with the rest of Great Britain (as, again, would be expected)^{xiv}.

^{xiii} In 2001, the percentage of the adult population in the three cities with no religious affiliation was 22% (Glasgow), 9.5% (Liverpool) and 16% (Manchester). These figures are clearly much lower than those reported in the three-city survey: however, they will have increased considerably between 2001 and 2011. The 2011 Census (limited data for which are available at the time of writing for Liverpool and Manchester, but not Glasgow) report figures of 18% of all residents in Liverpool, and 25% for Manchester. It is likely that the figures for adults aged 16+ are similar.

^{xiii} As highlighted above, the percentages of respondents believing it was quite/very likely that their lost wallet/purse would be returned intact were 27%, 40% and 29% in Glasgow, Liverpool and Manchester. In the 2004/5 General Lifestyle Survey the equivalent figure for Great Britain was 67%.

^{xiv} The 2010 BSAS suggested 45% of people across Britain thought 'most people could be trusted' compared with 20.5%, 27.4% and 24.6% in Glasgow, Liverpool and Manchester in this three-city survey. However, that particular BSAS question was only asked of less than 1,100 people across the whole of Great Britain, and this small sample size again highlights the danger of making comparisons between different surveys. The question was also asked in the 2009 Scottish Social Attitudes Survey, and again the national (Scottish) figure was considerably higher than that obtained for Glasgow in the three-city survey, with 45% of men and 58% of women saying that 'most people can be trusted'. However, analysis by area deprivation showed that the figures ranged from 65% in the least deprived fifth of the Scottish population to 31% in the most deprived¹⁴⁵. The 2009 SSAS had a sample size of less than 1,500¹⁴⁶.

More generally, other analyses of English survey data have suggested that Liverpool exhibits higher levels of some aspects of social capital that might be expected given its socioeconomic profile¹⁴⁷. This appears to be reinforced by some of the results presented within this section of the report.

Summary and conclusions

The data collected within the three-city survey suggest that there are some significant differences between the cities in relation to some (but not all) aspects of social capital. While the profile of the Glasgow respondents was either favourable in comparison with, or similar to, the English cities in relation to issues such as views on the neighbourhood, civic participation (albeit very low levels were recorded across all three cities) and social networks and support, it appeared to have significantly lower levels of social participation (in terms of volunteering, and a proxy for religious attendance) and trust compared with both Liverpool and Manchester, and lower levels of reciprocity, compared with Liverpool alone.

The significance of these results is considered in the Discussion section of the report.

5.5 Political effects

Background

The impact of neoliberal policies on the health of populations – in terms of the direct effects of, for example, unemployment¹⁴⁸⁻¹⁵⁰, welfare reform¹⁵¹, and low income^{152,153}, the widening of inequalities in health driven by widening of inequalities in income^{154,155}, and the ‘psychosocial’ effects on adversely affected groups^{156,157} (related to loss of status, disempowerment, low self-esteem, isolation and so on) – have been discussed elsewhere¹⁵⁸. It has been argued that the adoption of neoliberal policies in the UK from 1979 onwards (under the Conservative governments of Thatcher, and then Major) had a particularly negative effect on the health of Glasgow’s population, much more so than was the case in other UK post-industrial cities such as Liverpool and Manchester^{25,158}. This, it is argued, is because Glasgow was more vulnerable to the effects of neoliberalism for a number of reasons.

First, Glasgow was more vulnerable to the damaging effects of the Thatcher government’s housing policy, which was seen as part of a broader attack on ‘municipal socialism’. This saw the best council housing sold at discounted prices to better-off tenants, while the remaining stock, deprived of resources for repairs and improvements, and with rapidly increasing rents, was left for poorer (and increasingly stigmatised) tenants, increasingly dependent, in a context of mass unemployment, on housing benefit. Glasgow had much higher levels of council housing than comparable English cities, much of it by 1979 of an age and quality which meant that it already desperately required investment, and much of it already housing a very deprived population¹⁵⁸.

Second, West Central Scotland, and Glasgow in particular, was particularly affected by the sense of political alienation and disempowerment that was common to all UK deindustrialising cities at the time, where voters were typically hostile to neoliberal Conservatism. This was enhanced by the fact that local government in 1980s Glasgow proved, notwithstanding its Labour majority, both highly acquiescent to the policies of the post-1979 Conservative government, and also, in significant respects, quite willing to innovate in adapting neoliberal policy measures to its own particular circumstances¹⁵⁹: in this respect it was quite different to local government in Liverpool and Manchester – particularly the former – where there was greater resistance to central government. It is argued that such resistance might reasonably be expected to combat at least some of the damaging effects of political alienation and disempowerment on the communities adversely affected by policies which they had generally rejected at the polls.

Third, it has been argued that as Glasgow was part of a nation which experienced a more general ‘democratic deficit’ in the 1980s and 1990s (i.e. in terms of Conservative policies being implemented in Scotland, a country whose electorate had overwhelmingly rejected them in elections), this generated a distinct reaction in terms of national political culture which might reasonably be expected to intensify the sense of political alienation and disempowerment in comparison to the English cities¹⁵⁸.

It goes without saying, however, that asking survey participants in 2011 about the perceived effects of 1980s policies entails a number of potential difficulties. It is also the case that political effects may also be more recent (not least given the embracing of neoliberalism by UK governments after 1997), rather than solely embedded in the politics of 30 years ago. Thus, questions on perceptions of living in the UK in the 1980s were piloted carefully, and asked alongside additional questions on perceptions of current national and local governments, as well on respondents’ perceptions of their ability to influence change (the latter having been discussed in the previous section).

Results

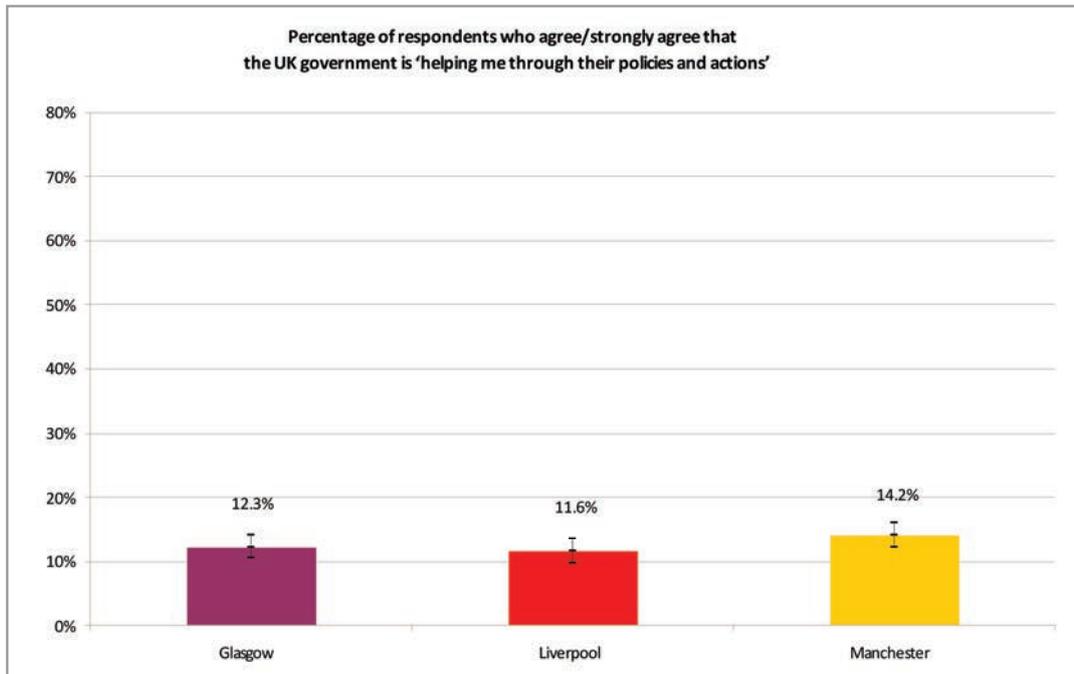
Perceptions of, and engagement with, current local and national governments

Four sets of questions were asked in this section. One (respondents’ perceptions of whether they could influence decisions affecting their local area, city or country) was, as just mentioned, discussed in the previous section, given its direct relevance to the social capital hypothesis. The other three (also connected, to a degree, to aspects of the civic participation element of social capital) asked whether respondents thought local and national governments were: helping them through their policies and actions; doing things to support their local community; and undermining their city. Overall a very negative perception of both local and national governments was held by the majority of respondents of all three cities.

As mentioned briefly in section 5.4, only 12-14% of respondents across the three cities said they believed (‘agreed’ or ‘strongly agreed’) that the current UK government’s policies were helping them as individuals (Figure 57), and only 17%-26% said the same of their local council’s policies (Figure 58). In relation to the former, there was no difference between the cities, nor was there any evidence of a deprivation or social class gradient (i.e. across all deprivation groupings and social classes, only small minorities had a positive perception of the current UK government in this regard), and both these results (the lack of significant difference between the cities and absence of a social gradient) were confirmed by the statistical modelling analyses.

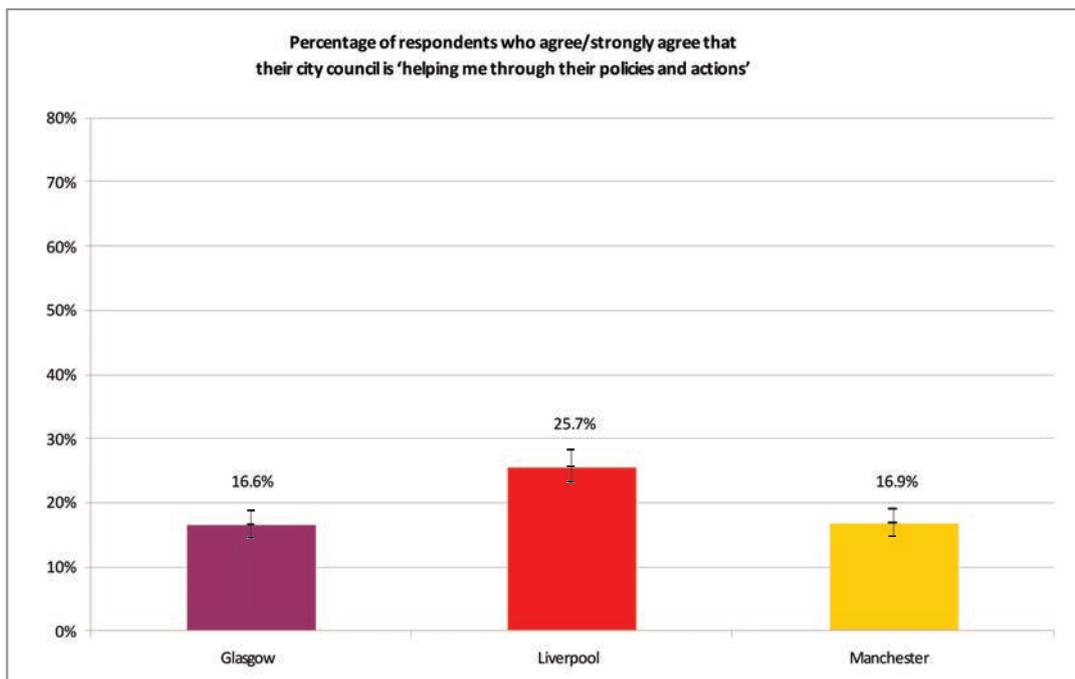
With regard to the latter (respondents' perceptions of their council's policies), Figure 58 shows that a greater percentage of the Liverpool sample (26%) thought positively of the local council than was the case in the other two cities (both 16%): this was true of most of the sub-city analyses (e.g. age, gender, deprivation quintile), and was also confirmed by the statistical modelling^{xiv}.

Figure 57



^{xiv} Residents of Liverpool were 81% more likely (odds ratio: 1.81 (95% confidence intervals 1.47, 2.22), $p < 0.0001$) than those in Glasgow to say that the local council was helping them through their policies and actions (after adjustment for all other factors in the model). There was no significant difference between respondents in Glasgow and Manchester in this regard. Those in an ethnic minority group, those in education or training and the retired, and those who were married or in a civil partnership were also significantly more likely to have a positive perception of the council in these terms (compared with, respectively, those who were not in an ethnic minority group, those who were employed and those who were single), while those in socioeconomic group 'E' (on state benefit/unemployed/lowest grade workers) were significantly less likely to state that the council was helping them through their policies and actions (compared with those in socioeconomic group 'A').

Figure 58



Among Glasgow respondents only, a similar sized small minority (17%) agreed or strongly agreed that the Scottish government was helping them through its policies and actions (Appendix A).

A very similar picture emerged from the analysis of the questions regarding whether national or local governments were 'doing things to support my local community'. Again, relatively few respondents in each city agreed or strongly agreed that this was the case with regard to the UK government (11% to 14% of each sample, with the regression modelling confirming there was no significant differences between the cities). These data are shown in Figure 59. However, although again only a minority in each city thought the same in relation to their local council, the percentage figures were higher (and again higher still in Liverpool) than for the question about the UK government: 20% in Glasgow, 24% in Manchester and 34% in Liverpool (Figure 60). The regression analyses showed that after adjusting for other factors in the model, these differences between the cities remained significant^{xlvi}.

Sixteen percent of Scottish respondents agreed or strongly agreed that the Scottish government was supporting their local community in this way (Appendix A).

^{xlvi} After adjustment, respondents in Manchester were 38% more likely to agree or strongly agree that their city council were doing things to support their local community compared with respondents in Glasgow (OR: 1.38 (1.13-1.68), $p < 0.01$), while respondents in Liverpool were 95% more likely than those in Glasgow (OR: 1.95 (1.61-2.35), $p < 0.0001$).

Figure 59

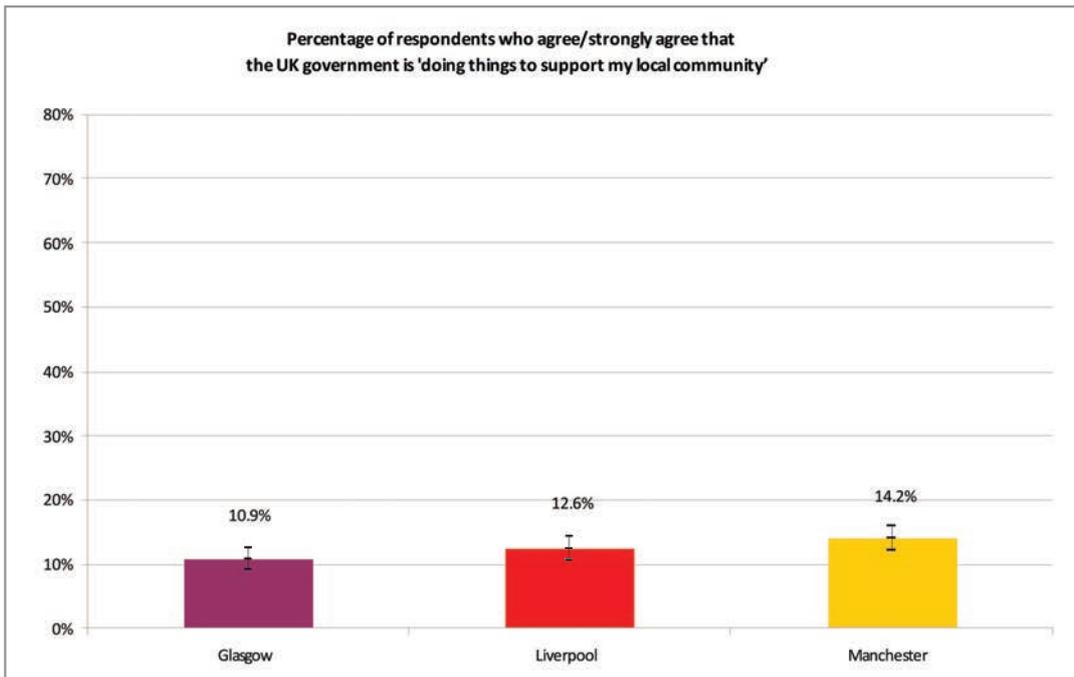
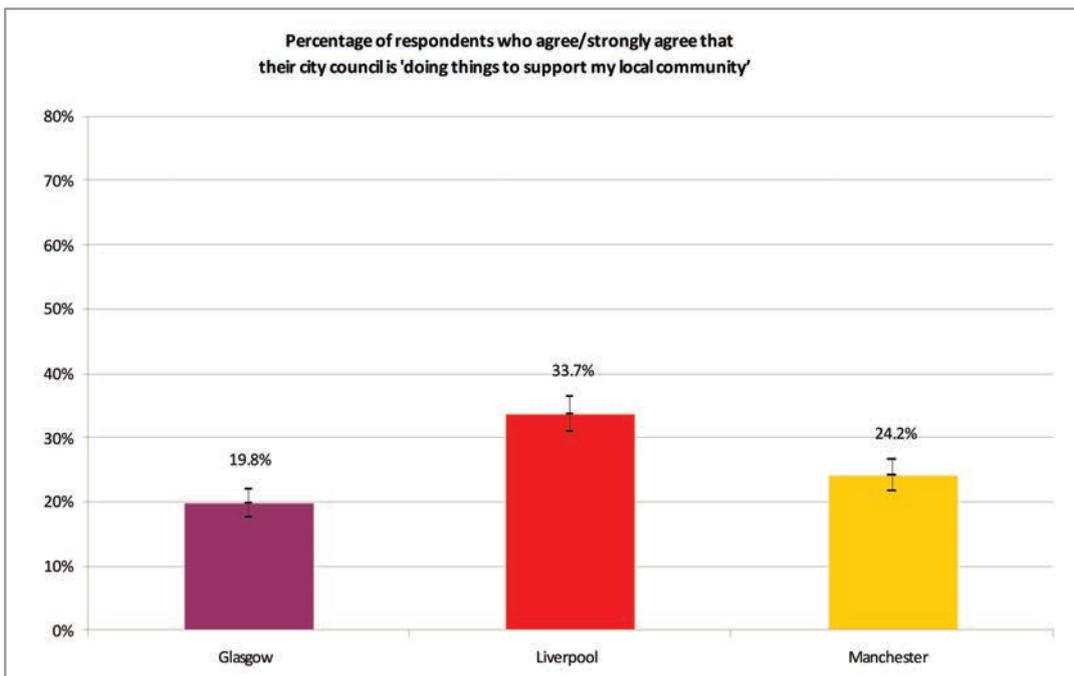


Figure 60



Finally, respondents were asked whether they agreed that local and national governments were ‘undermining’ their city. Just under one third of respondents in Glasgow (30%) and Manchester (28%) agreed or strongly agreed that this was the case in relation to the UK government; however, the equivalent figure for Liverpool was, at 50%, significantly higher (Figure 61). The higher figure in Liverpool was also evident from the sub-group analyses, including analysis by deprivation quintile (Figure 62). Interestingly, a significantly higher percentage in Liverpool (compared with the other two cities) also believed that the local council was undermining the city (30% compared with 20% in Glasgow and 18% in Manchester (Figure 63), with the same true of most sub-sample analyses (especially among younger ages and in more deprived areas). This suggests a polarised view of Liverpool City Council among this particular sample. Note that both sets of city differences were confirmed as being significant in the regression modelling analyses.

Figure 61

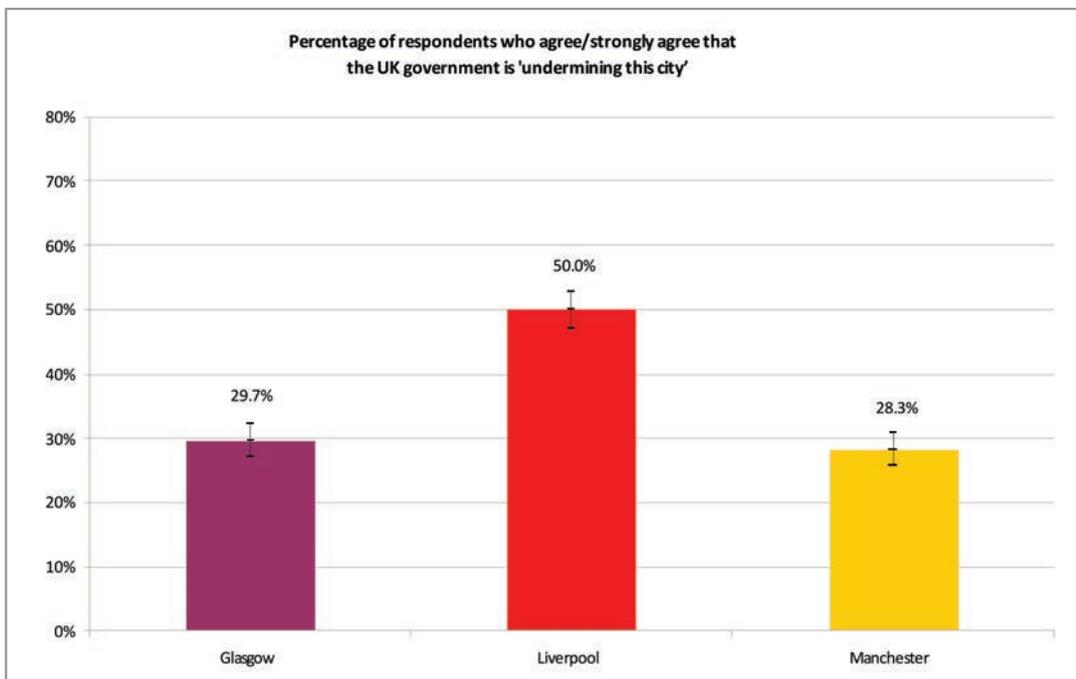


Figure 62

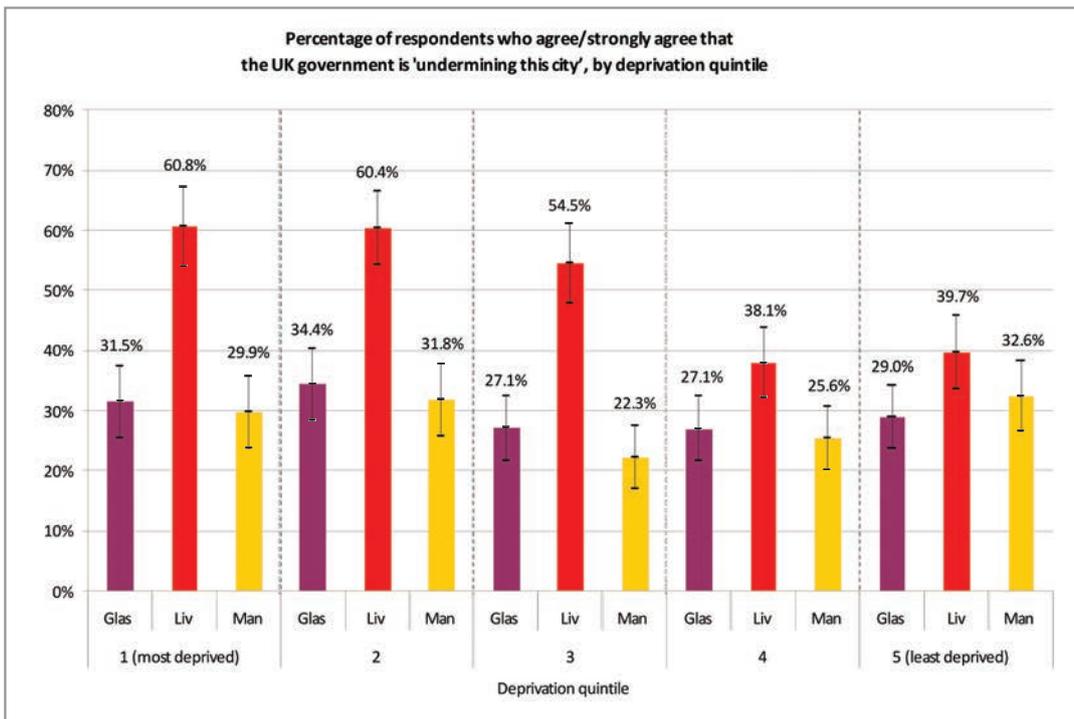


Figure 63

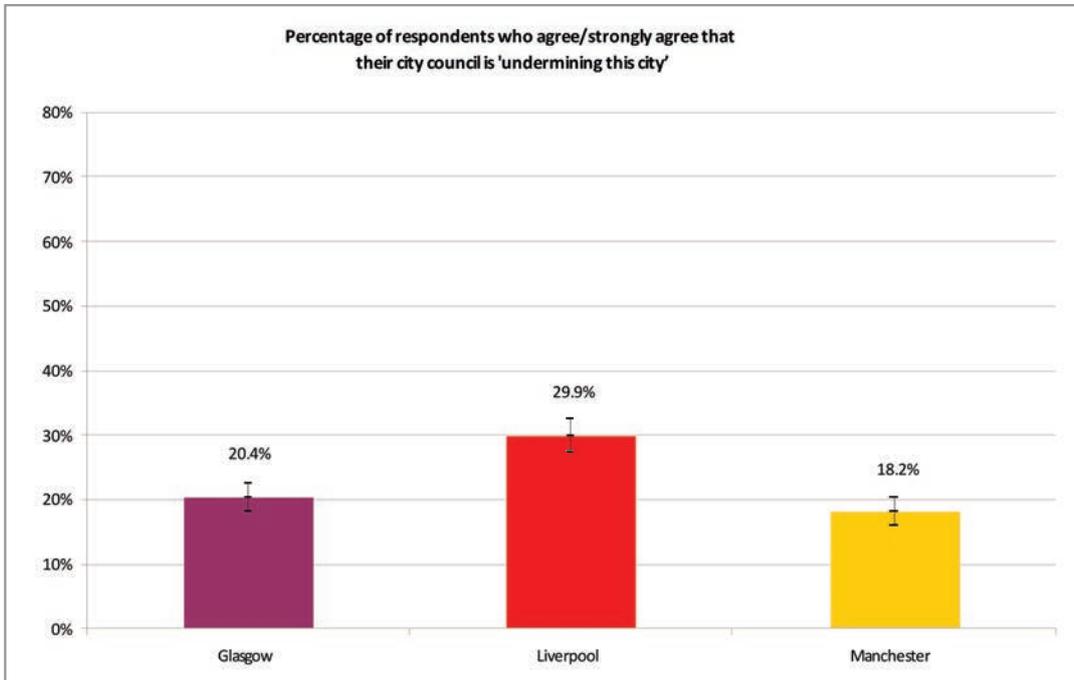
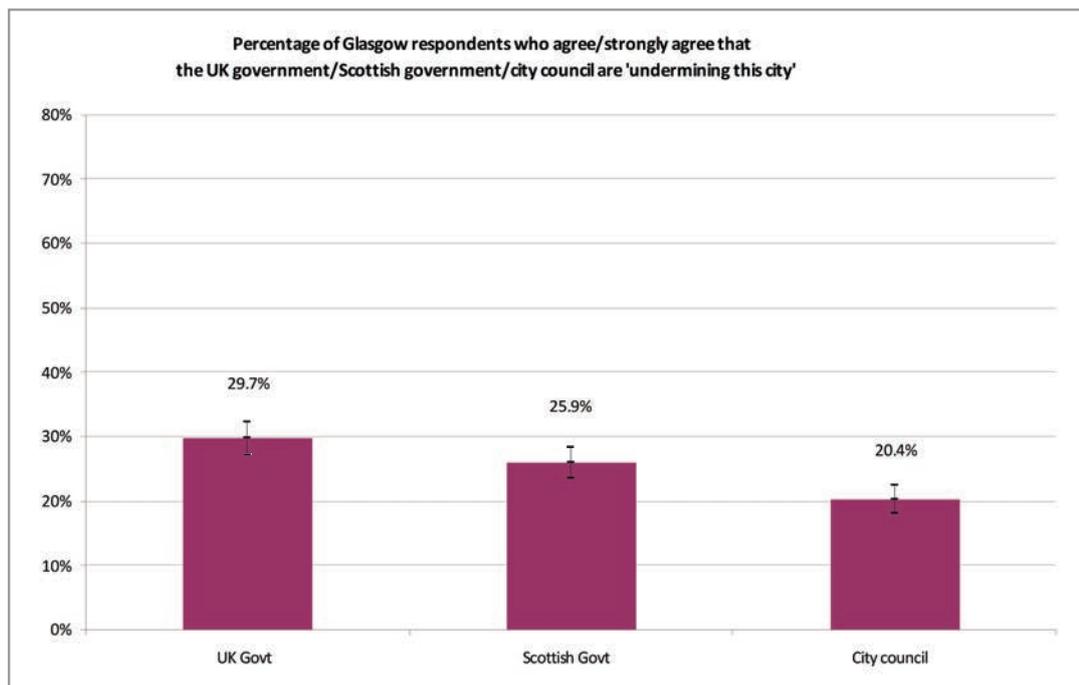


Figure 64 shows that around a quarter of Glasgow respondents agreed or strongly agreed that the Scottish government was undermining their city, compared with the (already-shown) figures of 30% for the UK government and 20% for the local council.

Figure 64



Perceptions of living in the UK in the 1980s

Five topics were included under this heading:

1. General perceptions of the 1980s (i.e. whether respondents felt hard done by; whether at that time they felt optimistic about the future; whether the area in which they lived 'got worse' in the 1980s; and whether, at that time, they felt they could 'change things').
2. Perception of the UK government in the 1980s in terms of support and care for individuals, communities, and the UK as a whole.
3. Perception of the local government in terms of standing up for the best interests of the cities in that decade.
4. Trust in 1980s local and UK governments and their representatives.
5. Attendance at 1980s public demonstrations about government policies.

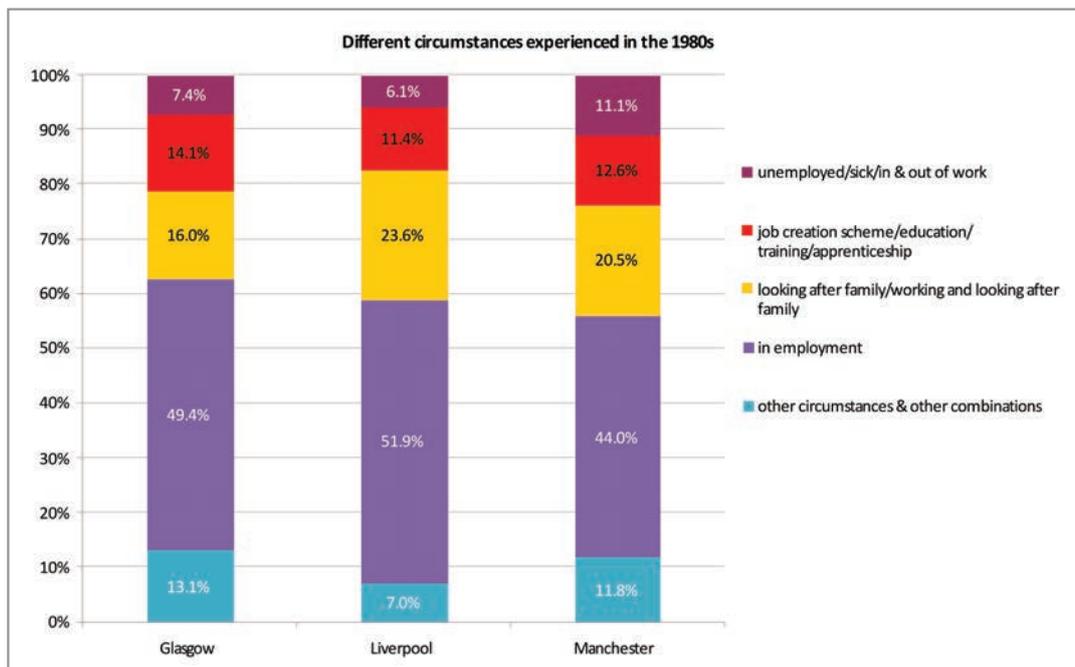
As stated in the Methods section of the report, these questions were only asked of those who had lived through the 1980s (defined as being aged at least 16 years by 1990), which reduced the sample size by almost 50%^{xlvii}. The analyses were also limited to those resident in the same city in the 1980s as in 2011 – although in fact this represented the vast majority of each

^{xlvii} The unweighted sample size was reduced from 3,701 to 2,072 (44% reduction), and the weighted sample from 3,697 to 1,726 (53% reduction).

sample: respondents were asked where they had lived for ‘most of the 1980s’, and 81%, 85% and 89% of those living in Manchester, Glasgow and Liverpool respectively in 2011, and who had lived through the 1980s, said they were resident in the same city in that decade.

Respondents were also asked to describe the circumstances they experienced during the 1980s, with options including: being unemployed; on sickness benefits; looking after family members; working in an industrial job; working in the public sector (e.g. for the council or a nationalised industry); working for a private company; on a job creation scheme; in and out of work; in education, training or an apprenticeship^{xlviii}. Overall there were no great differences between the profiles of the three samples, with the exceptions of ‘working for a private company’ (more common in Liverpool (31%) than Manchester (18%) and Glasgow (22%)), and the percentages who reported that they were unemployed or on sickness benefits (higher in Manchester). For the purposes of the modelling analysis, a summary version of these data was derived, grouping the answers within five broad headings as shown in Figure 65 below.

Figure 65

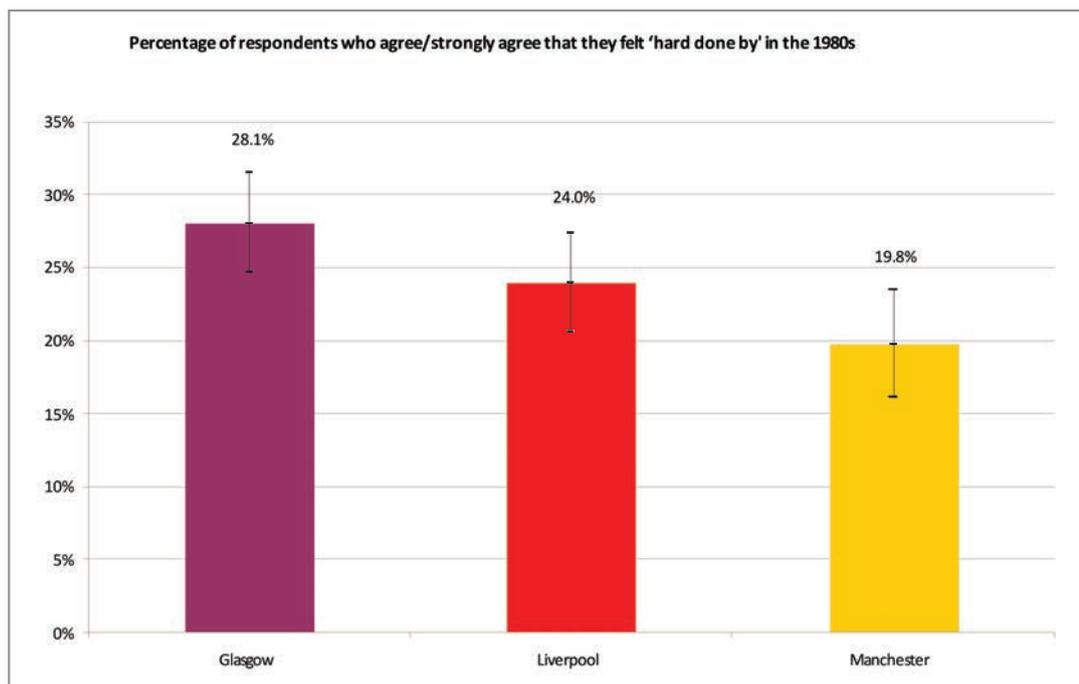


^{xlviii} Respondents could select as many options as were applicable.

General perceptions of the 1980s

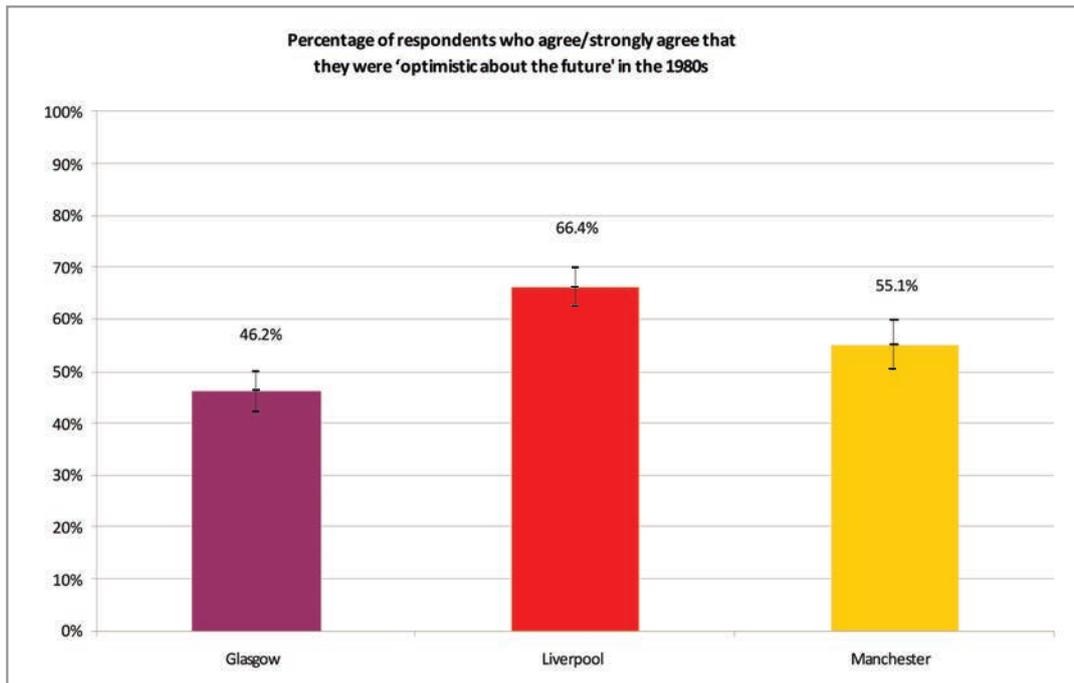
A significantly greater percentage of the Glasgow sample (28%) agreed or strongly agreed that they had felt 'hard done by' compared with those in Manchester (20%), but not compared with those in Liverpool (24%) (Figure 66). This difference was confirmed as significant in the modelling analysis, which also showed this perception to be more common in all three cities among males compared with females, and among those who were unemployed, sick, or 'in and out of work' compared with other categories.

Figure 66



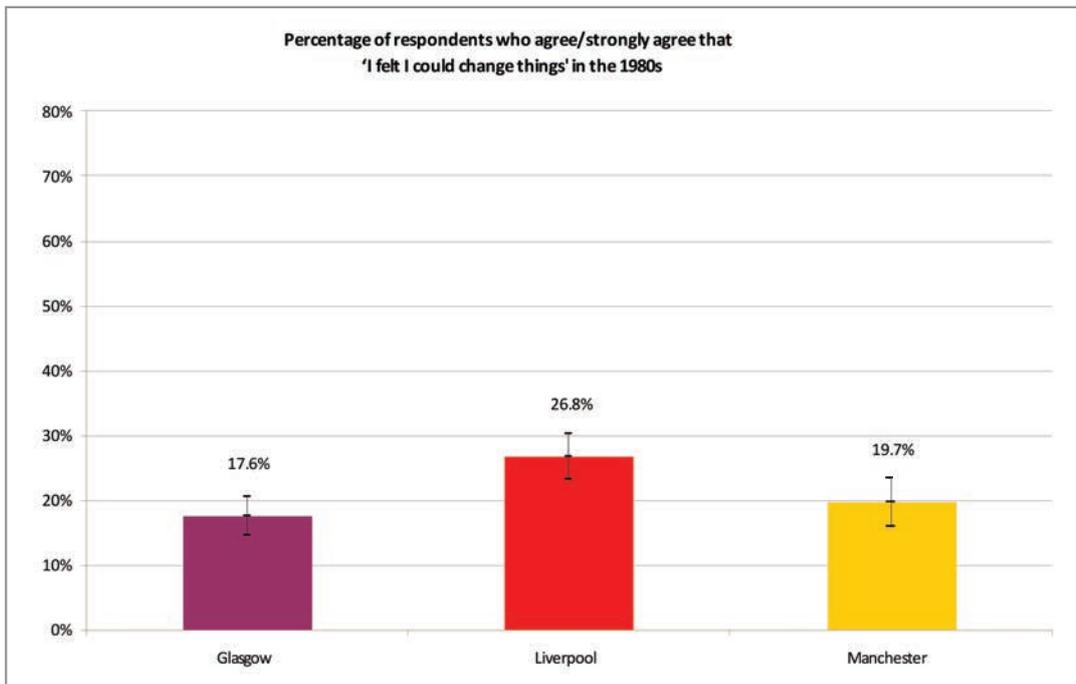
A significantly smaller percentage of respondents in Glasgow agreed or strongly agreed that they had 'felt optimistic for the future' in the 1980s compared with those in Liverpool and Manchester: 46% compared with 66% and 55% respectively (Figure 67). These differences were again confirmed as significant in the regression modelling analysis after adjustment for other factors in the model. The regression analyses also showed predictable significant associations e.g. those who had not been unemployed/sick/'in and out of work' in the 1980s were more likely to say they felt optimistic than those who had been, and those with degree level qualifications more likely to report optimistic feelings than those with no qualifications.

Figure 67



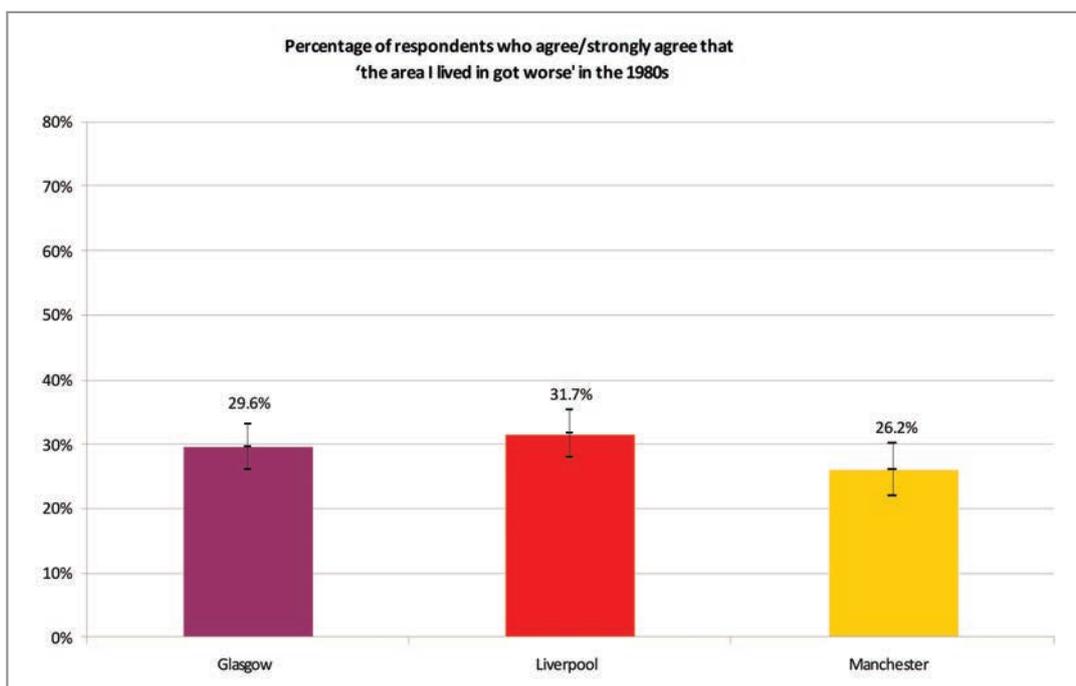
The higher level of optimism among the Liverpool respondents is also reflected in Figure 68, showing the percentage of each sample who agreed or strongly agreed that they 'felt they could change things' in the 1980s: 27% compared with 18% and 20% in Glasgow and Manchester respectively. Again, this difference was shown to be significant in the modelling, with the model again also showing the same significant association between levels of educational attainment and likelihood of reporting optimistic feelings (as also seen in the previous model).

Figure 68



Just over a quarter of each city's sample reported (agreed or strongly agreed) that the area in which they lived in the 1980s had deteriorated ('got worse'), the figures ranging from 26% in Manchester to 32% in Liverpool (Figure 69). However, the modelling confirmed that these differences were not statistically significant. Predictably, those living in the least deprived areas, and those who had not been unemployed/sick/'in and out of work', were less likely to agree that this was the case.

Figure 69



Perceptions of the UK government in the 1980s

Three questions were asked about respondents' perceptions of the 1980s UK government, regarding the extent to which respondents agreed that: they 'felt that the government did not support people like me'; they 'felt the government cared about my local community'; and 'the government were working to make the country better'. Perhaps predictably, the general perception of the UK government at the time across all three samples was principally negative. Thus, 40% and 44% of respondents in Glasgow and Liverpool respectively agreed or strongly agreed that the UK government in the 1980s 'did not support people like me' (Figure 70), compared with just 24% and 25% respectively who disagreed or strongly disagreed. However, the percentage agreeing or strongly agreeing was, at 33%, lower in Manchester (and among that sample a similar number disagreed or strongly disagreed: 29%). Only 14%-18% of each city felt that the UK government cared about their local community at the time, with no significant differences evident between the cities (Figure 71), and only 20%-26% believed that the government was 'working to make the country better' (Figure 72) (again, no statistically significant differences between the cities were observed). These results were confirmed by the statistical modelling analyses.

Figure 70

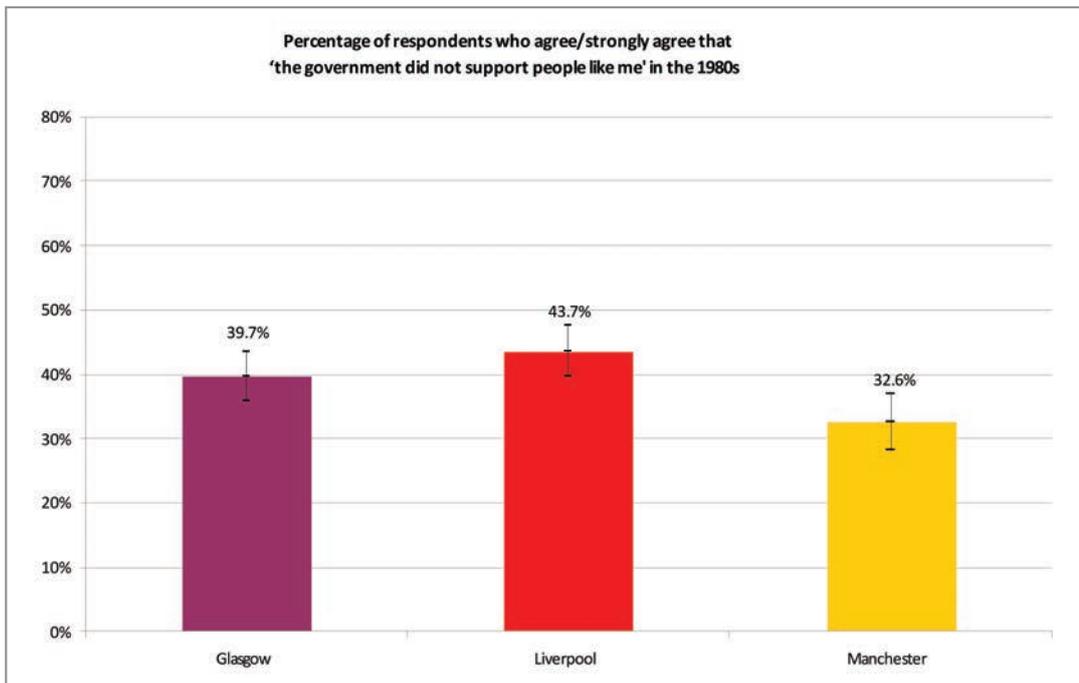


Figure 71

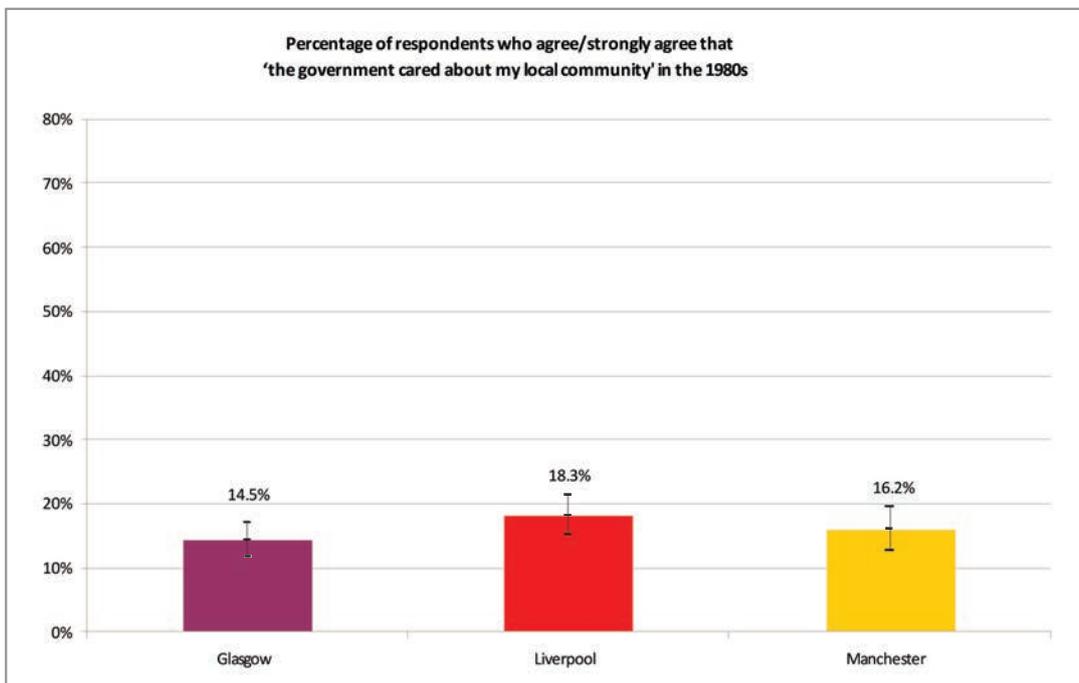
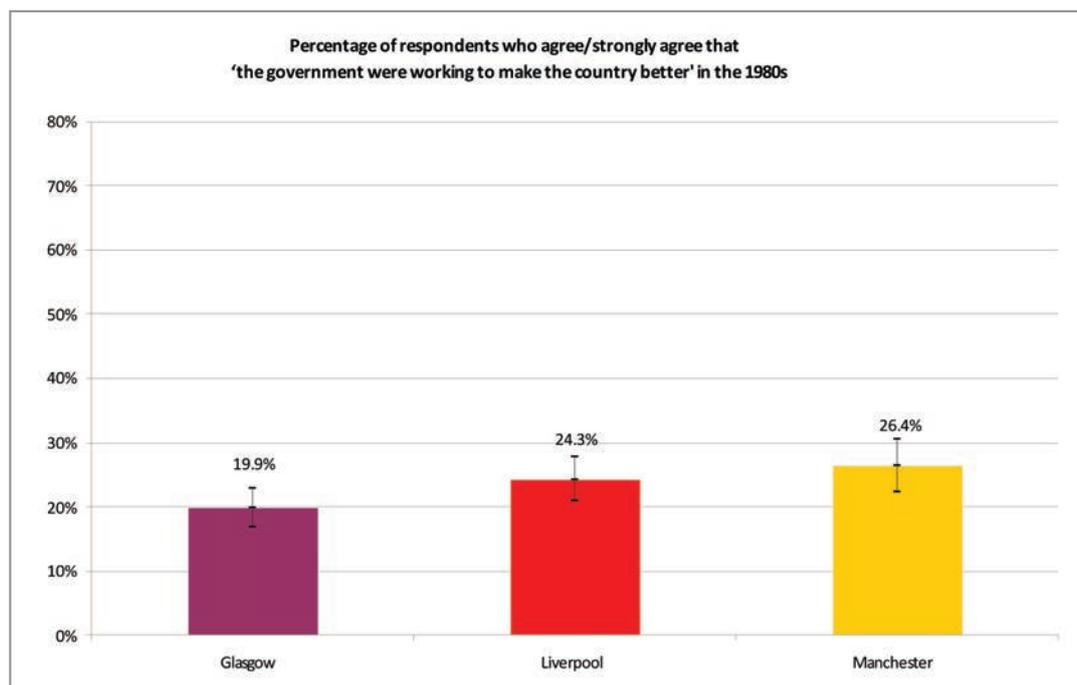


Figure 72

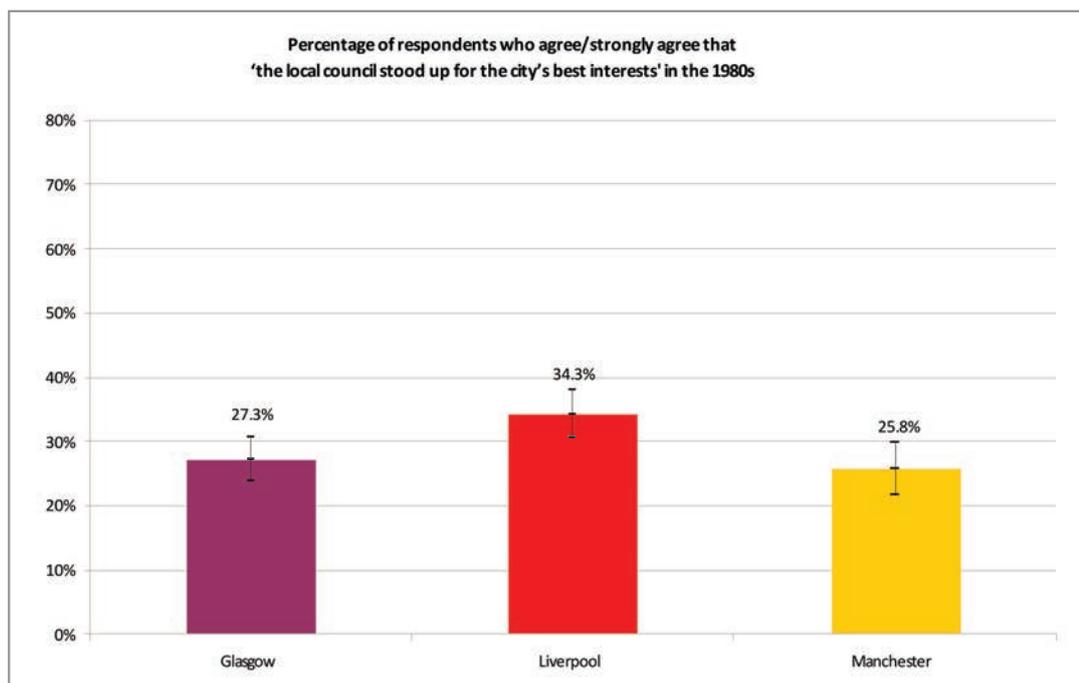


Perception of local councils in the 1980s

Respondents were asked to what extent they agreed with the statement that their local council in the 1980s 'stood up for the city's best interests'. Between a quarter and a third of respondents in each city agreed or strongly agreed that this was the case (Figure 73), with similar numbers disagreeing or strongly disagreeing (data not shown). Reflecting results of some of the other analyses, the level of agreement was significantly higher in Liverpool compared with the other two cities, with that difference confirmed by the multivariate regression analyses: after adjustment for other factors in the model, Liverpool respondents were 37% more likely to agree or strongly agree that their local council stood up for their city's best interests compared with Glasgow respondents^{xlix}. This more positive perception was also shared (across all three cities) by older compared with younger respondents, and by those with degree level qualifications compared with those with none.

^{xlix} Odds ratio: 1.37 (95% confidence intervals 1.07, 1.75), $p < 0.05$.

Figure 73



Trust in 1980s governments and their representatives

Respondents were asked about the extent to which they thought that, in the 1980s, they were able to trust: their local city council; their local MP; and the UK government. Again it is perhaps no great surprise that, overall, very low levels of trust emerged from all three samples. Over half of each sample reported that they thought they could trust their local council 'not very much' or 'not at all' (Figure 74), with only around 30% in each city reporting the opposite (that they could trust the council 'a lot' or 'a fair amount') (Appendix A); very similar numbers in each sample said they could not trust their local MP in the 1980s (Figure 75), while between 65% and 70% of the three sets of respondents reported a similar lack of trust in the UK government of the time (Figure 76). In all three cases, there were no significant differences between the cities, and the results were confirmed by the modelling analyses.

Figure 74

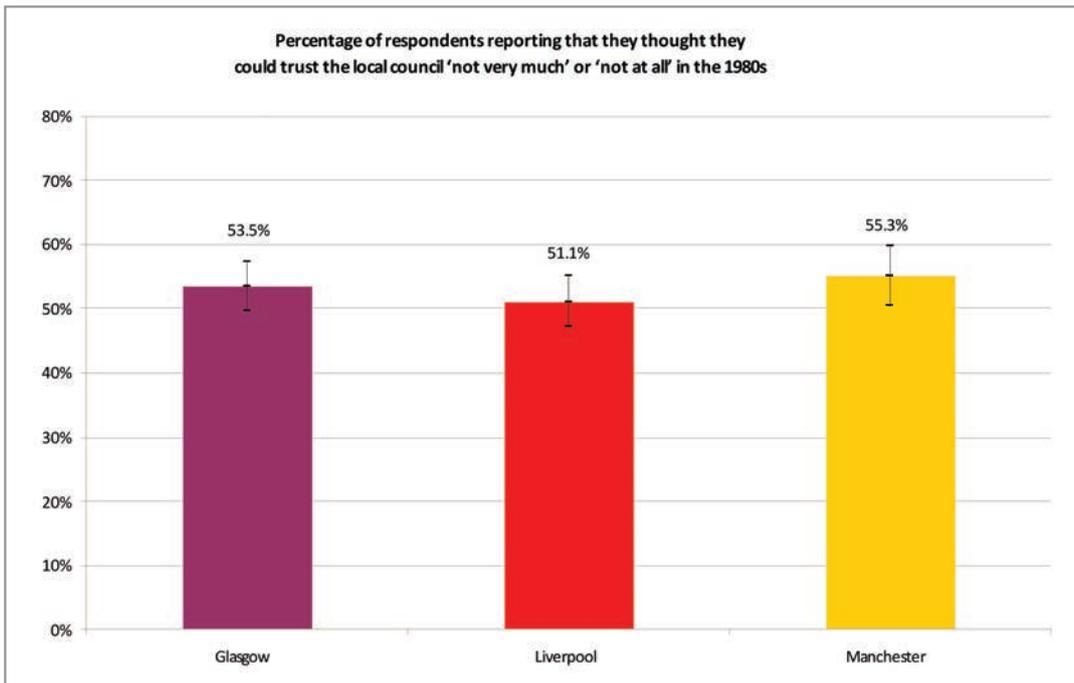


Figure 75

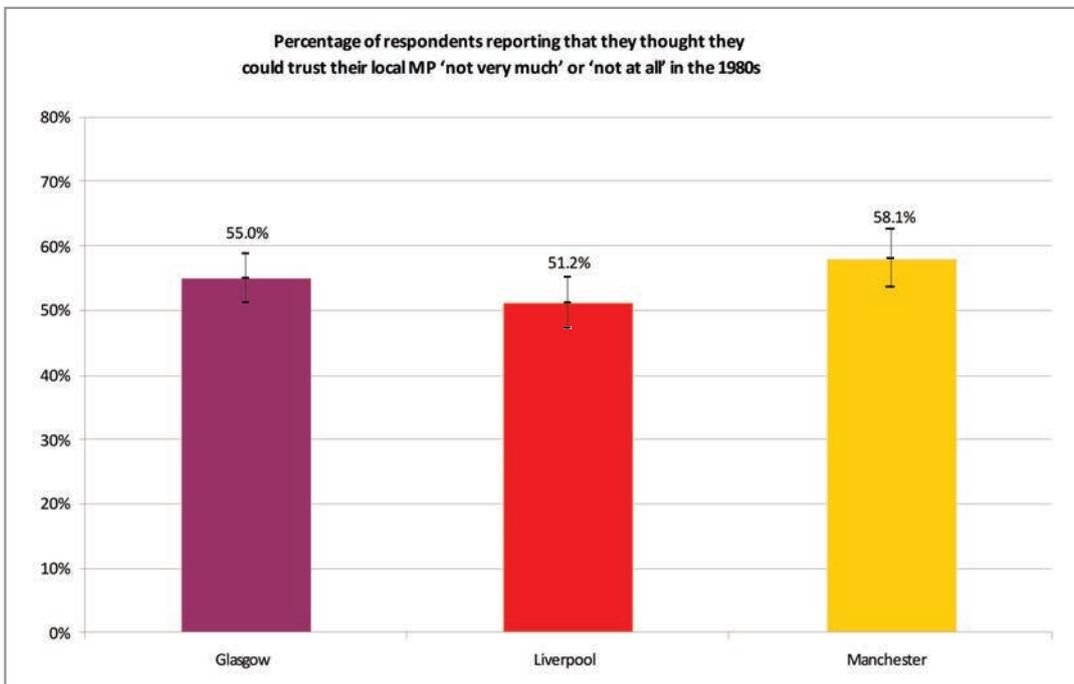
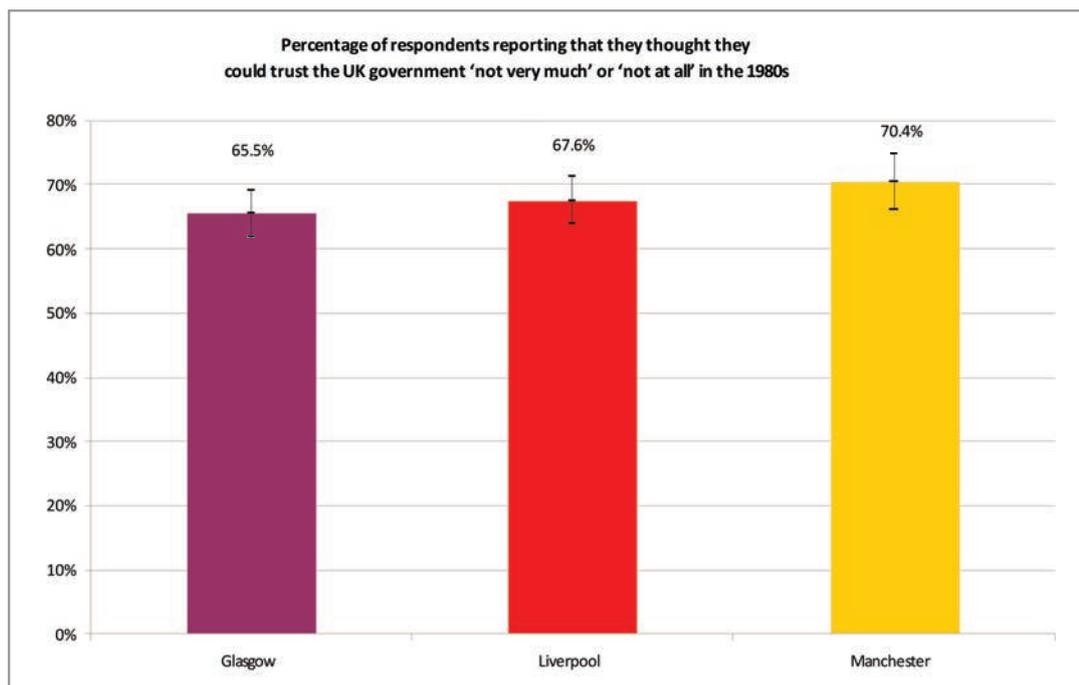


Figure 76



Attendance at public demonstrations about government policies

Respondents were asked whether or not in the 1980s they attended any public demonstrations about government policies (with demonstrations defined as 'public rallies, meetings, strike actions or other similar events').

Across the whole three-city sample, around 9% of respondents who had lived through the 1980s reported that they had attended demonstrations of this type. Figure 77 shows that a significantly higher percentage of Liverpool respondents reported having attended demonstrations compared with the other two cities (14% compared with 5% in the other two cities), and Figures 78 and 79 show that this was true of most age groups and social classes. Again, this difference between the cities is confirmed by the modelling analyses, with Liverpool respondents almost three times more likely¹ to report that they had attended a demonstration in the 1980s, after adjustment for other factors in the model. Those analyses also show that those currently in social grade C1 (supervisory, clerical and junior managerial, administrative or professional), C2 (skilled manual workers), D (semi and unskilled manual workers) and E (on state benefits/unemployed/lowest grade workers) were *less* likely to state that they had attended a demonstration than those in groups A (high managerial, administrative or professional) and B (intermediate managerial, administrative or professional); similarly, those currently with degree level qualifications were three times more likely than those without qualifications to have attended such an event. These findings may reflect involvement in student demonstrations in the 1980s.

¹ Odds ratio: 2.88 (95% confidence intervals 1.88, 4.43), $p < 0.0001$.

An obvious caveat regarding this analysis (and others of the 1980s sub-sample) is that social class (shown in Figure 79, and used in the modelling alongside other socioeconomic factors such as area deprivation and educational attainment) relates to respondents' current situation, rather than that of the 1980s.

Figure 77

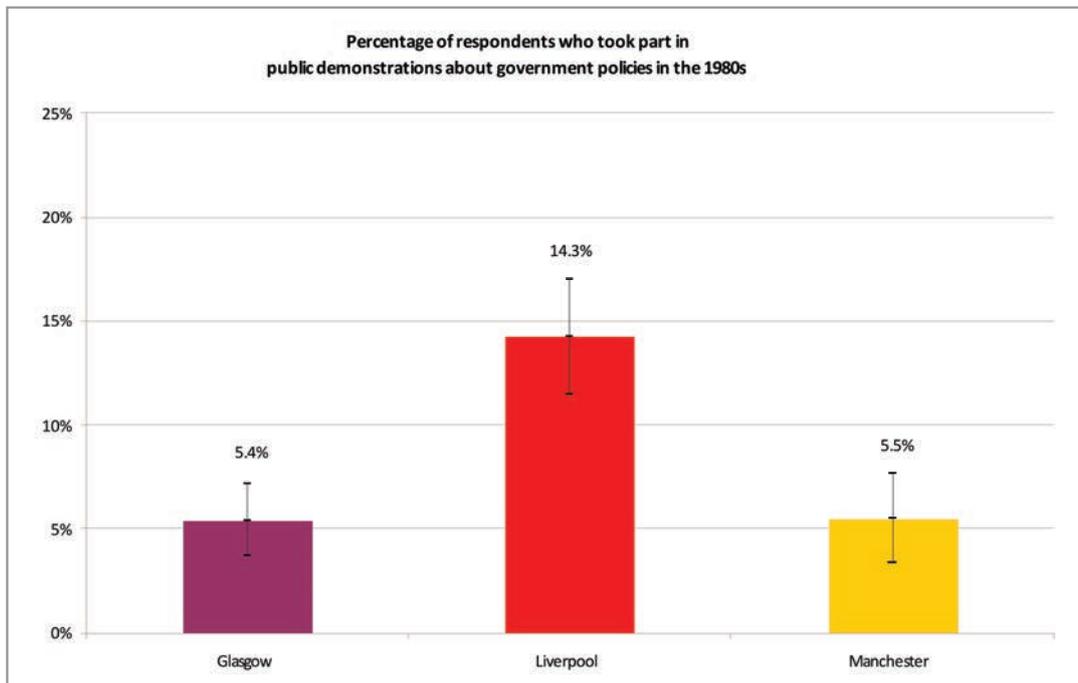


Figure 78

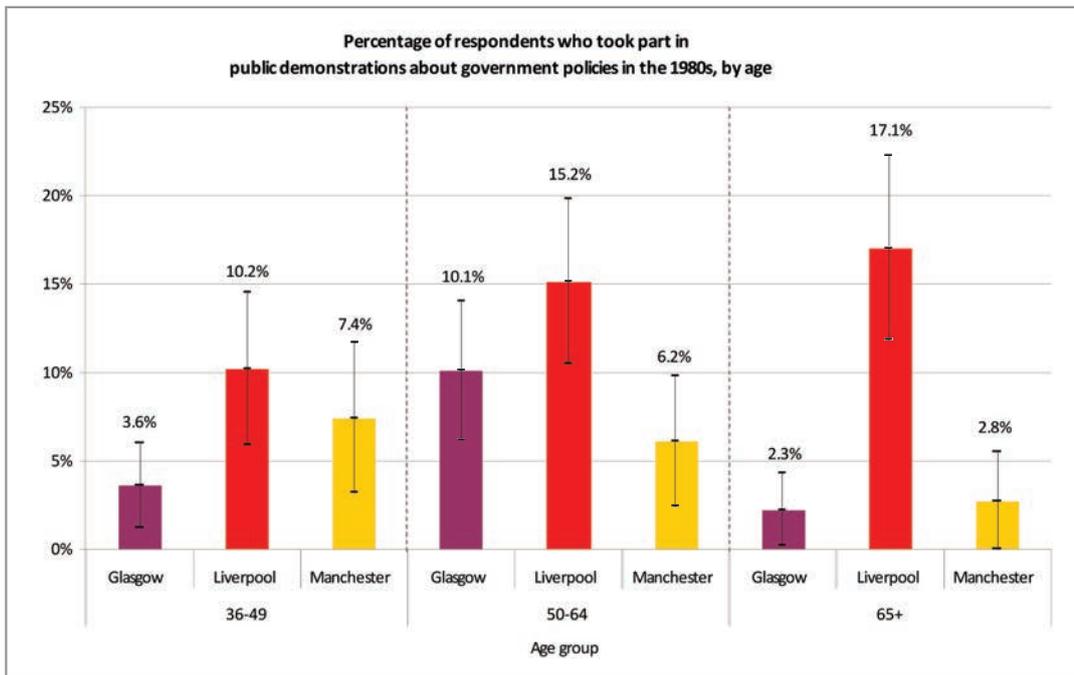
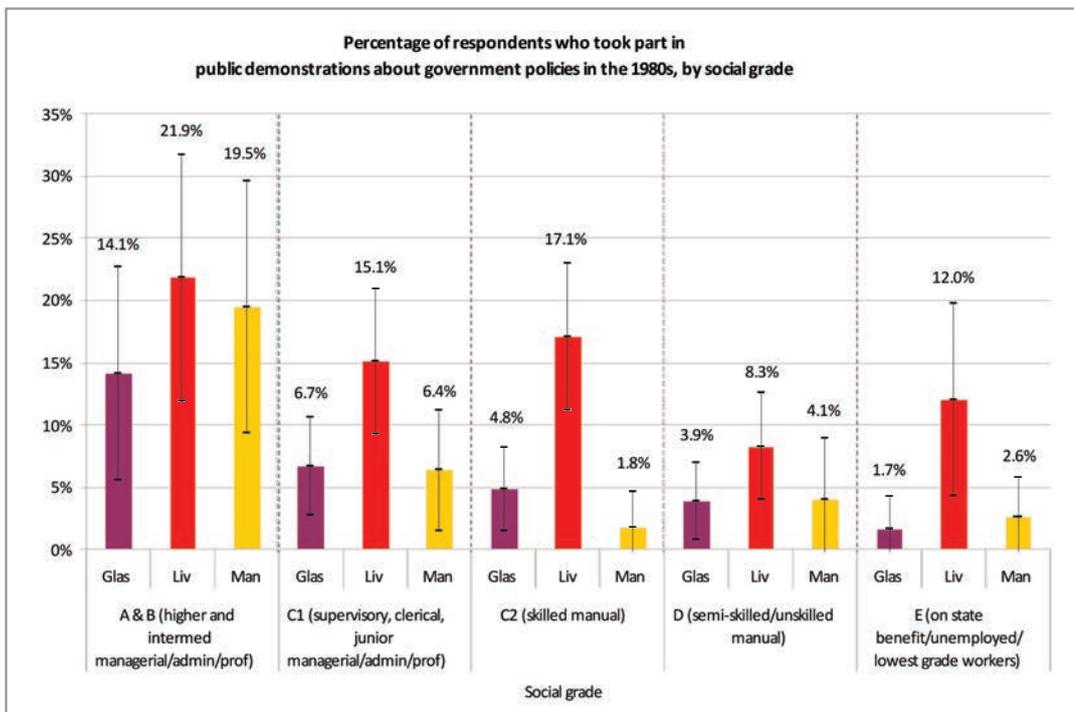


Figure 79



Comparisons with other data

There are no other data with which we can make direct comparisons with these ‘political’ data collected in the three-city survey. The most relevant, potentially, are those collected within the Scottish Social Attitudes Survey (SSAS) and the British Social Attitudes Survey (BSAS), waves of both of which have included questions on trust in government. However, those questions relate to *current* government, whereas the trust-specific questions in the three-city survey concerned government in the 1980s. Moreover, the SSAS has a sample size of around 1,500^{160,ii} across all Scotland, rather than just Glasgow; similarly the BSAS covers all of Great Britain, and the relatively small sample size (3,300 in 2011, with a response rate of 54%⁶⁴) means that no city-specific data can be extracted for analysis.

That said, data from the most recent SSAS seems to confirm the negative perception of the UK government on the part of the majority of Scottish-based respondents. For example, the 2011 survey¹⁶¹ showed that only 18% of respondents trusted the UK Government *to act in Scotland’s best interests* ‘just about always’ or ‘most of the time’. However, this contrasts sharply with a much higher percentage of respondents who said they could trust the Scottish government (rather than the UK government) in this way: 71%. Similarly only 18% of respondents in the 2011 SSAS thought they could trust the UK government ‘a great deal’ or ‘quite a lot’ to *make fair decisions*, while 46% thought the same in relation to the Scottish government.

However, low levels of trust in the UK government are not confined to Scottish-based respondents. The 2011 BSAS showed that only 20% of respondents across Great Britain reported that they trusted the UK government ‘just about always’ or ‘most of the time’.

Summary and conclusions

The analyses in this section have been presented under two principal headings. First, in terms of *perceptions of, and engagement with, current local and national governments*, an overall picture of negative perception and low levels of engagement emerged:

- Across all three cities, relatively few respondents believed that either the UK government or their local city council was helping them as individuals or supporting their communities; a positive perception of the city council was, however, more common among Liverpool respondents.
- More people within the Liverpool sample, compared with the other two samples, believed that both the current UK government, and their local city council, were ‘undermining’ their city: this suggests a polarised perception of local government within the Liverpool sample.
- As already discussed within the ‘social capital’ section (section 5.4), relatively few people in each city thought they could influence decisions affecting their neighbourhood, city or the UK.

ⁱⁱ Average annual sample size 1999-2009.

Second, *perceptions of living in the UK in the 1980s* were generally fairly negative, although some city differences did again emerge:

- Overall, the Glasgow sample was associated with a more negative general perception of the 1980s than the two English sets of respondents: levels of optimism were lower (especially compared with Liverpool respondents); a higher percentage of the Glasgow sample stated they 'felt hard done by' (significantly higher compared with the Manchester sample); and a significantly lower percentage (compared with Liverpool respondents) 'felt they could change things'. However, on the question of area deterioration there was less difference between the cities, with over a quarter of respondents in each having stated that their local area deteriorated ('got worse') in the 1980s.
- Very few respondents from all three cities had positive perceptions of the 1980s UK governments; between a quarter and a third of respondents across the cities had a positive perception of their local council at this time (although higher figures were again evident among the Liverpool sample).
- In a similar vein, very low levels of trust of the local council, the local MP and the UK government in the 1980s were evident in all three cities.
- Possibly in accordance with the higher levels of social participation evident in the Liverpool sample in the social capital analyses, Liverpool respondents seem to have been more overtly politicised in terms of having attended more anti-government demonstrations in the 1980s (and having stronger views on the UK government generally).

Overall, some evidence of more negative general perceptions of the 1980s emerged from the Glasgow sample and, alongside that of Manchester, the Scottish sample reported much lower levels of popular political mobilisation against central government in that decade compared with those in Liverpool. On the other hand, these findings sit alongside other results showing few clear differences between the cities in terms of attitudes to, and engagement with, current and historical government structures. However, whether the questions included within the survey would realistically be expected to provide the basis on which this hypothesis could adequately be assessed – or indeed whether any such survey questions could, in and of themselves, allow for that – is clearly quite doubtful. Furthermore, an obvious caveat is that analysis of – for example – perceptions of optimism across three cities in the 1980s, recorded in 2011, is fraught with difficulty in terms of accurate recollection, measurement, interpretation, comparison and all the rest. These results will be considered further in the Discussion section of the report.

5.6 Different individual values

As outlined in Section 3 (*hypotheses under investigation*), it has been hypothesised that different individual values among Glasgow's population might influence health behaviour and lifestyle choices, ultimately impacting on outcomes such as morbidity and mortality.

Data relating to five types of individual values are presented here, all of which overlap to a degree. These are: psychological outlook (itself incorporating optimism, achievement, meaningfulness of life, and self-efficacy); hedonism; time and risk preferences; individualism; and materialism.

Psychological outlook – optimism

Background

A number of studies have highlighted the health benefits of an optimistic outlook¹⁶²⁻¹⁶⁵ and, more generally, of 'positive psychological wellbeing'^{166,167}. For example, a 2012 review suggested that such a positive psychological outlook "protects consistently against cardiovascular disease (CVD), independently of traditional risk factors... [being] positively associated with restorative health behaviours... and inversely associated with deteriorative health behaviours"¹⁶⁸. In the same review, optimism in particular was highlighted as a factor in reducing risk of CVD, and a separate 'meta-analytic' review in 2009 of optimism and physical health (including studies of mortality, CVD, cancer outcomes and immune function) concluded that "optimism is a significant predictor of positive physical health outcomes"¹⁶⁹.

There are different ways of measuring optimism, and different survey scales have been developed. However, the most commonly used¹⁶⁹ is probably the Life Orientation Test, or its shorter, revised version, the Life Orientation Test (Revised) (LOT-R)⁵⁴. Both have been independently assessed as good measures of optimism, the shorter, revised version especially so^{54,170-172}, having been described as a "highly reliable and valid measure of generalised optimism" and "the best measure of optimism"¹⁷⁰. Although there have been criticisms, for example in relation to it being a general, 'context-free' measure (whereas context-specific measures may be more appropriate in some settings)^{170,173}, and in terms of whether it captures just one dimension of psychological outlook (optimism alone) or two dimensions (optimism and its opposite, pessimism¹⁷⁴, its advantages have generally been perceived to outweigh its disadvantages (and in relation to the latter criticism, studies in 2006 and 2012 concluded that the LOT-R accurately captures both dimensions, optimism and pessimism^{175,176}).

Consequently, therefore, the LOT-R was used to measure optimism in the three-city survey. The question we sought to ask was: is there any evidence of lower levels of optimism among Glasgow's population which might have a negative effect on its health and wellbeing?

Results

The LOT-R scale is made up of ten statements against which respondents' level of agreement (from 'strongly disagree' to 'strongly agree') is recorded. However, of the ten statements, four are 'dummy' statements (or 'fillers') and are excluded from the overall score. The minimum score that can be calculated is 0 (representing extreme pessimism) and the maximum is 24 (representing extreme optimism)ⁱⁱⁱ.

Figures 80-83 show average LOT-R score by city alone (Figure 80), city and gender (Figure 81), city and age group (Figure 82) and city and social grade (Figure 83). These show that at the city level, levels of optimism among Glasgow and Liverpool respondents were identical, and significantly higher than among respondents in Manchester. Generally the same pattern is evident among the samples' sub-groups (age, gender and so on). An interesting u-shape distribution is evident in the analysis by age, echoing other analyses of optimism and other psychological aspects (e.g. happiness) across the life-course¹⁷⁷. A clear social gradient can be seen in Figure 83. The statistical modelling analyses confirmed that the higher optimism score among the Glasgow and Liverpool samples compared with that in Manchester remained significant after adjustment for other factors in the modelⁱⁱⁱⁱ. The modelling analyses also showed expected associations between levels of optimism and some of the independent (predictor) variables included in the models: for example, higher optimism among those living in less deprived areas (compared with those in the most deprived areas) and among those with higher educational qualifications (compared with those with none), and lower optimism among those of low social grade compared with those of highest, those not working (through unemployment, being sick, or looking after home and family) compared with those who were working, and those in poor health compared with those in good health (Appendix B). Similar associations were evident in the modelling analyses of the Glasgow-only sample (Appendix C).

ⁱⁱⁱ The six statements included in the total LOT-R score are: in uncertain times, I usually expect the best; if something can go wrong for me it will; I'm always optimistic about my future; I hardly ever expect things to go my way; and I rarely count on good things happening to me; overall, I expect more good things to happen to me than bad. In calculating the total score for each question, a negatively-worded statement (e.g. if something can go wrong for me it will) was reverse-coded (i.e. strongly agree coded as 0 rather than 4).

ⁱⁱⁱⁱ The Manchester sample was associated with a score of 0.76 lower than the fully adjusted mean score for the Glasgow sample (regression coefficient: -0.76 (95% confidence intervals -1.01, -0.51), $p < 0.0001$); the mean score for the Liverpool sample was not statistically different to that of Glasgow's sample.

Figure 80

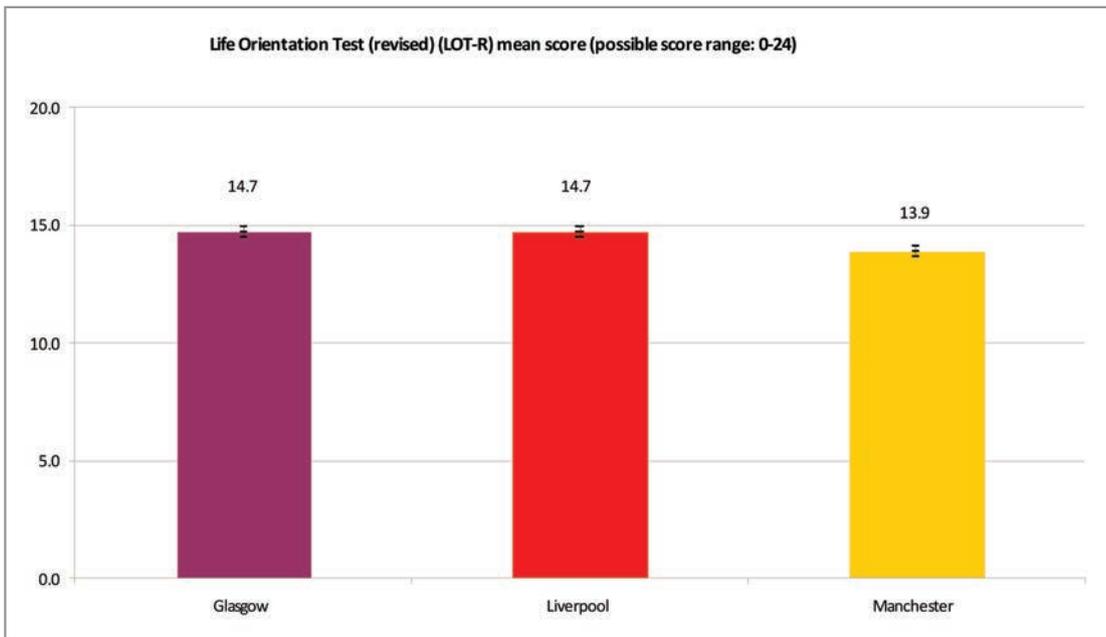


Figure 81

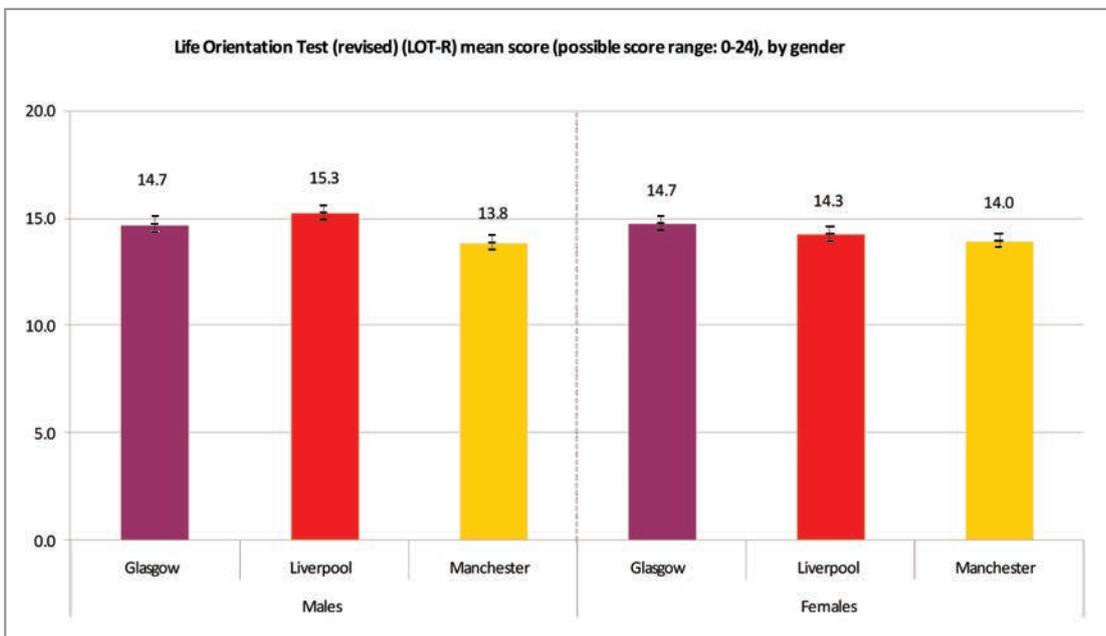


Figure 82

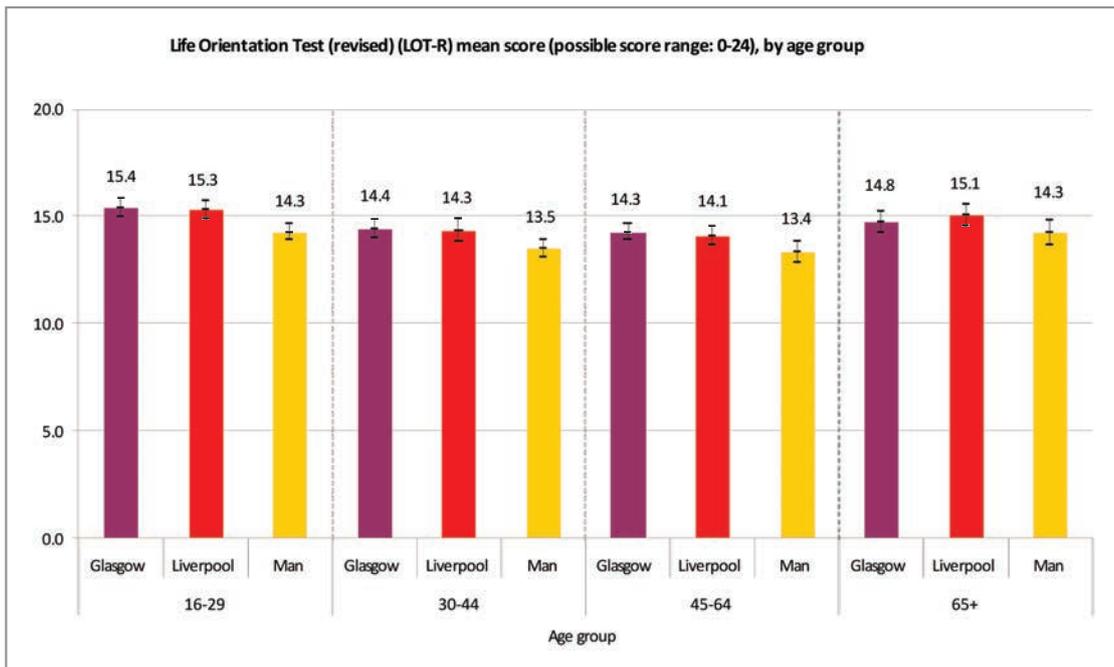
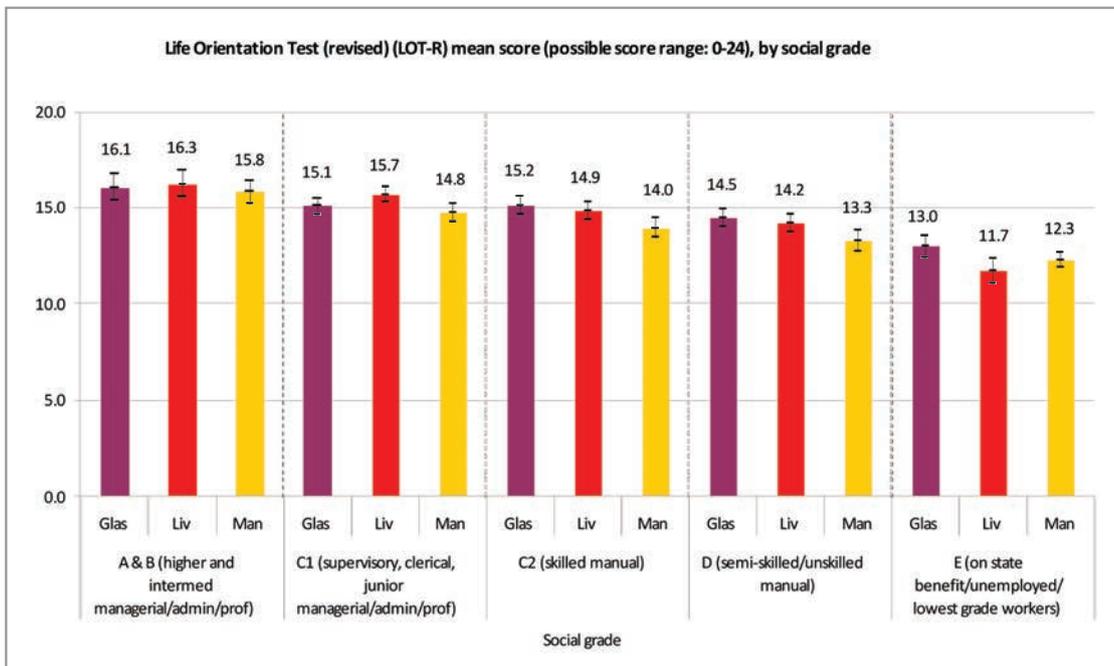


Figure 83



Psychological outlook – achievement

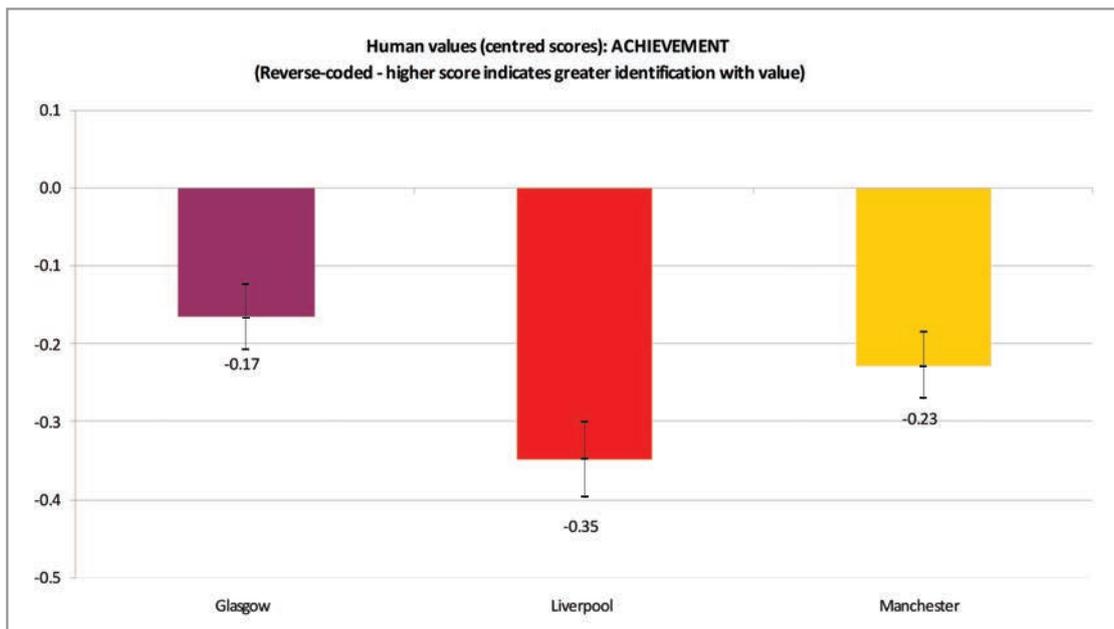
It has been hypothesised that Glasgow’s population may be characterised by lower levels of aspiration than in Liverpool and Manchester. One of Schwartz’s ten human values that

Exploring potential reasons for
Glasgow’s ‘excess’ mortality

is particularly relevant to this theory is *achievement*. The achievement value is derived from two statements (with respondents rating the extent to which they believed themselves to be similar to the person described^{liv}): *It's important to him to show his abilities. He wants people to admire what he does;* and *Being very successful is important to him. He hopes people will recognise his achievements.*

Figure 84 shows the adjusted^{lv} achievement score for each city, where a higher score represents greater association of the value with respondents. This suggests achievement is significantly more associated with the Glasgow sample than the Liverpool sample, although probably not when compared with the Manchester sample. However, the regression modelling analyses showed that, after adjustment for other factors, the Glasgow score was significantly higher than that of Manchester^{lvi}. The modelling also showed that those in the samples who identified *less* with the value of achievement were: the older compared with the younger (an age gradient is evident); females compared with males; lower social classes compared with higher; and those not working through sickness/disability, retirement and looking after home/family compared with those who were working.

Figure 84



^{liv} As before (and elsewhere in the report), and for simplicity, the ‘male’ versions of the statements are shown here. Female respondents were presented with a female version of the statements. As stated, the full questionnaire is included within Appendix E.

^{lv} As already mentioned stated, all Human Values Scale scores are adjusted to allow for scale use differences by individuals. Also (as stated earlier), scores are also reverse-coded to aid interpretation: as Appendix E (full questionnaire) shows, options that can be selected by respondents for this scale range from 1 (‘very much like me’) to 6 (‘not at all like me’); scores are therefore reverse-coded so that the higher the score, the more associated with the value a participant’s answer is.

^{lvi} Regression coefficients (B) (i.e. difference in mean value compared with reference category (Glasgow) after adjustment for other factors in the model): Liverpool -0.19 (95% confidence intervals -0.25, -0.13), $p < 0.0001$; Manchester -0.13 (95% confidence intervals -0.19, -0.07), $p < 0.0001$.

Psychological outlook – meaningfulness of life

As already described in Section 5.3 and elsewhere, the *meaningfulness* component of Antonovsky's Sense of Coherence (SoC) scale is entirely relevant to the hypothesis relating to psychological outlook. To feel that one's life has meaning and purpose is a fundamental element of one's overall outlook. As shown in Figure 25 in Section 5.3, the meaningfulness sub-scale of SoC is significantly *higher*, not lower, among Glasgow respondents than among those in Liverpool and Manchester.

Psychological outlook – self-efficacy

As stated earlier, self-efficacy (as measured by the Generalised Self-Efficacy (GSE) scale) has been defined as 'the belief that one can perform a novel or difficult task, or cope with adversity – in various domains of human functioning'¹⁵⁵: it links, therefore, to the notions of optimism (reflecting an 'optimistic self-belief'^{155,170}), aspirations, as well as another hypothesis discussed in the next section of the report, social mobility. As with the LOT-R measure of optimism, higher levels of self-efficacy have been shown to be significantly associated with positive health behaviours¹⁷⁸ as well as better health-related outcomes¹⁷⁹⁻¹⁸¹, while the scale itself has been deemed a 'successful', valid measure¹⁷⁰. GSE is calculated from respondents' levels of agreement with ten statements, with each response scored from 1 ('not at all true') to 4 ('exactly true'): the total score, therefore, can range from 10 (reflecting low self-efficacy) to 40 (high self-efficacy)^{lvii}.

Figures 85-88 show that, as was the case with optimism measured by the LOT-R scale, GSE scores for the Glasgow sample were very similar to those of the Liverpool sample, with both mean scores significantly higher than that of the Manchester respondents (although some exceptions apply: for example self-efficacy in those aged 65+ years was significantly higher in the Liverpool sample compared with both the Glasgow and Manchester samples). The statistical modelling again confirmed these differences at the city level after controlling for all other factors in the model. The model also showed significantly lower self-efficacy among: females; those classed as lower social grade compared with those of higher social grade (also clearly evident from Figure 88); those living in the most deprived compared with the least deprived areas; those not working (unemployed, sick, looking after home/family) compared with those employed; those with no educational qualifications; and those in poor health compared with those in good health (Appendix B)). Similar results were obtained from the regression analyses of the Glasgow-only sample (Appendix C).

^{lvii} The statements are: I can always manage to solve difficult problems if I try hard enough; If someone opposes me, I can find means and ways to get what I want; It is easy for me to stick to my aims and accomplish my goals; I am confident that I could deal efficiently with unexpected events; Thanks to my resourcefulness, I know how to handle unforeseen situations; I can solve most problems if I invest the necessary effort; I can remain calm when facing difficulties because I can rely on my coping abilities; When I am confronted with a problem, I can usually find several solutions; If I am in a bind, I can usually think of something to do; No matter what comes my way, I'm usually able to handle it.

Figure 85

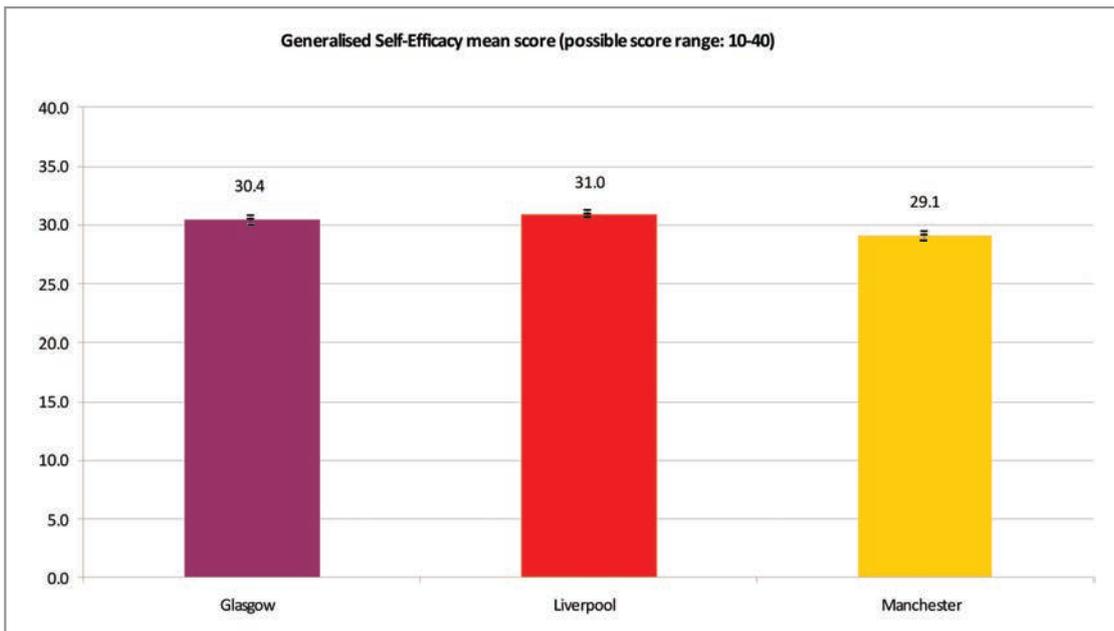


Figure 86

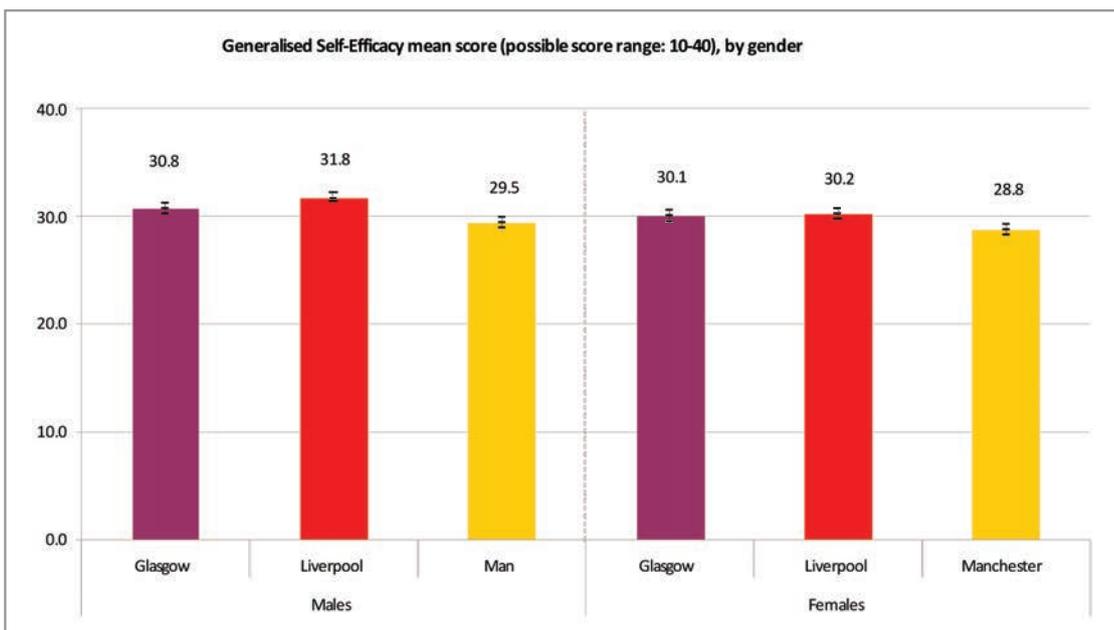


Figure 87

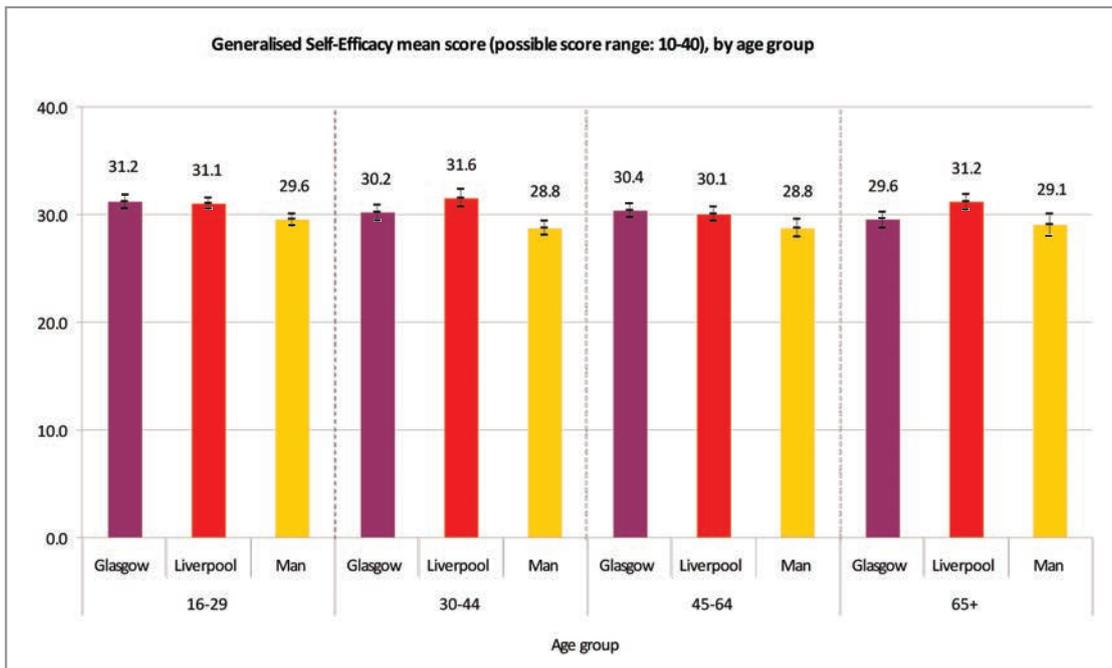
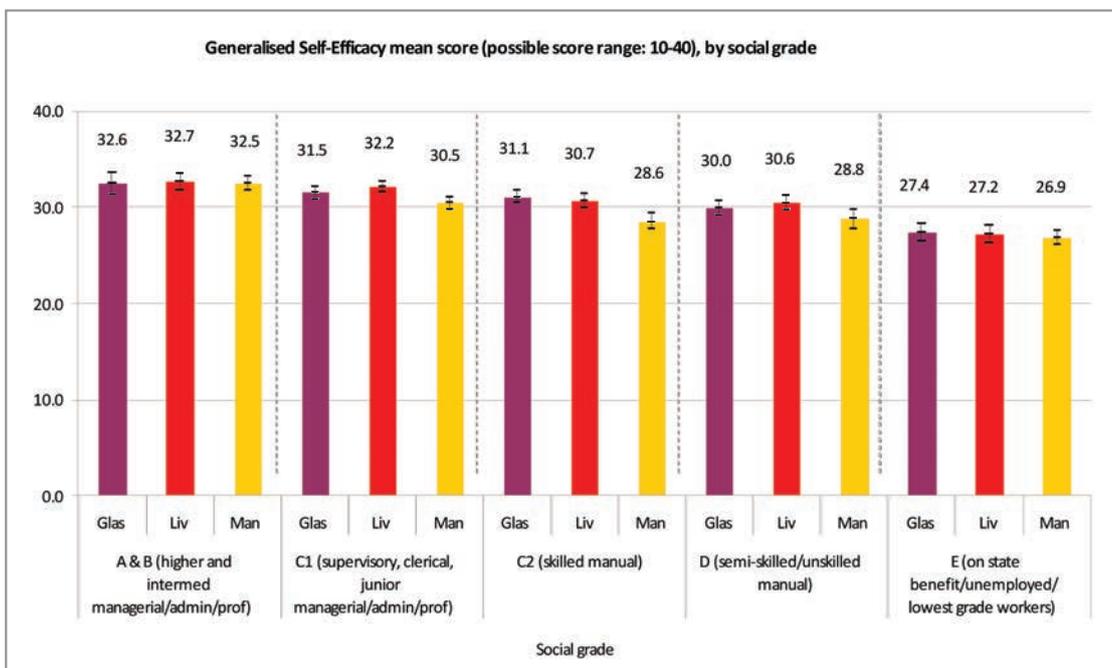


Figure 88

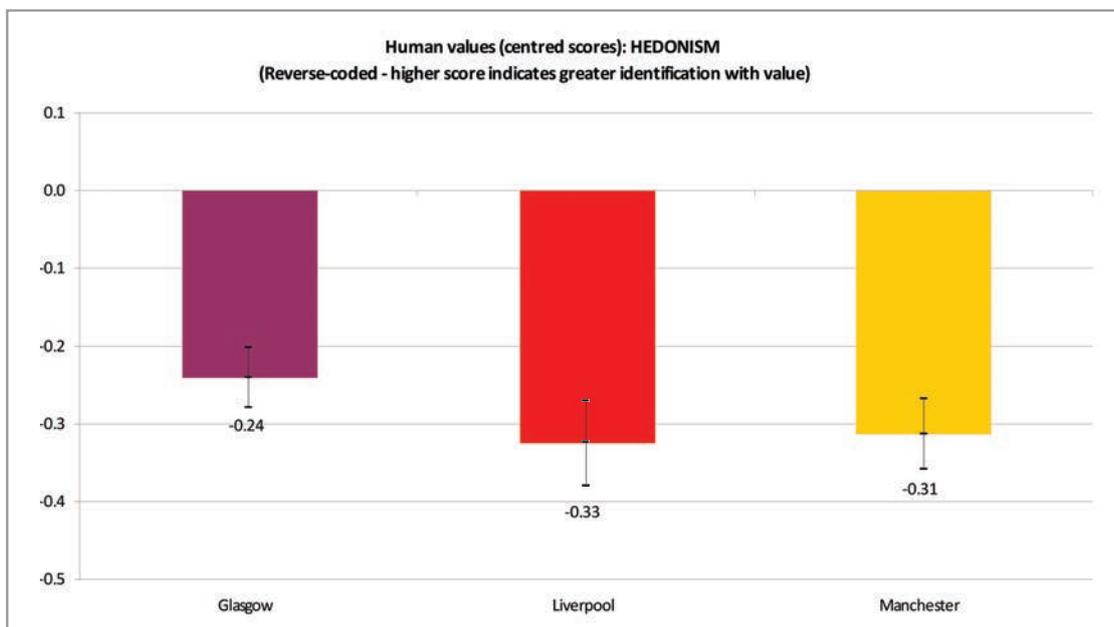


Hedonism

If Glaswegians were more hedonistic in nature (as has been hypothesised by some²⁴), that would affect behavioural and lifestyle choices, potentially impacting on health outcomes.

Hedonism is one of the ten values in Schwartz's scale, based on respondents identifying themselves ('How much like you is this person?') with these two descriptions: *Having a good time is important to him. He likes to 'spoil' himself;* and *He seeks every chance he can to have fun. It is important to him to do things that give him pleasure.* However, as Figure 89 shows, and as was confirmed by the regression modelling analysis, there were no significant differences between the mean hedonism scores for the three samples.

Figure 89



As Figures 90 and 91 show, association with the hedonism value tended to differ by gender (more associated with males than females in Liverpool and Manchester, although not in Glasgow) and age (more associated with the young than the old). Figure 90 also shows hedonism to be significantly more associated with females in Glasgow than those in Liverpool. Overall, the age and gender differences were confirmed by the modelling analysis. The latter also showed lower levels of identification with hedonistic values among those in an ethnic minority group (compared with those who were not), those who were married/in a civil partnership compared with those who were single, those with a limiting long-term illness (compared with those without), and those with educational qualifications compared with those with none.

Figure 90

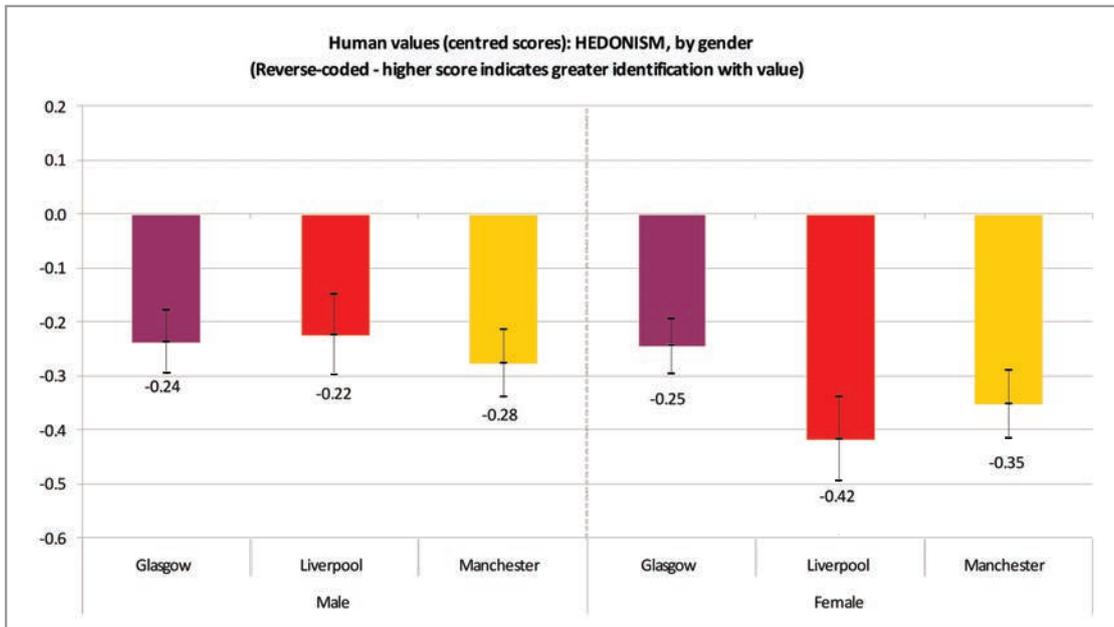
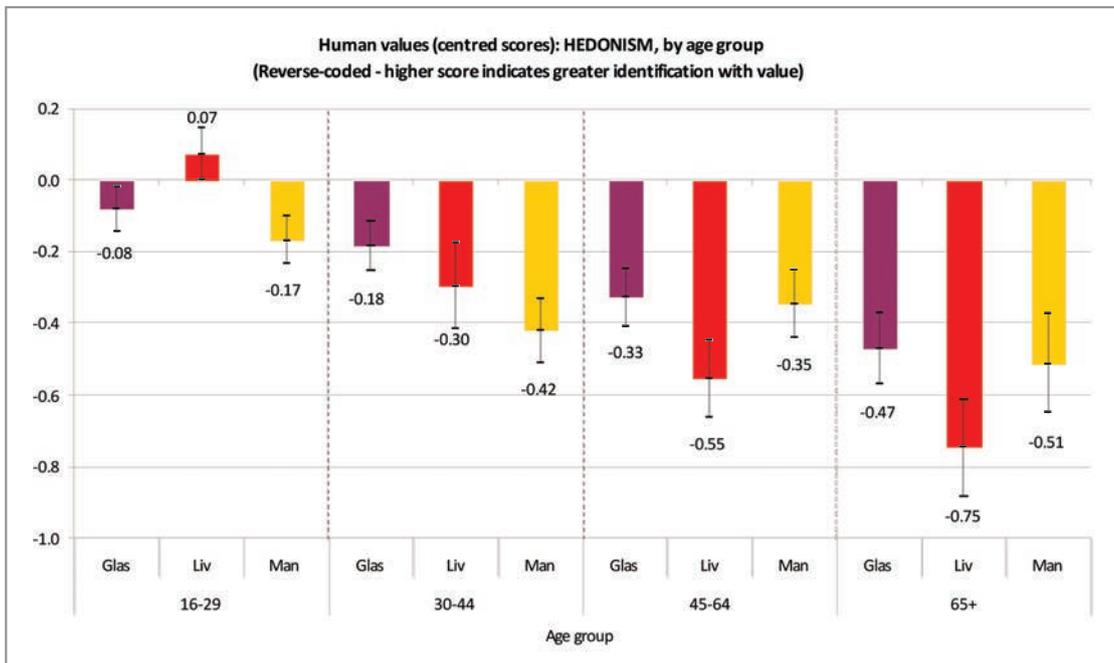


Figure 91



Time and risk 'preferences'

This hypothesis draws on economic theory and is measured by means of a complex set of survey questions. Appendix D (written by colleagues at the University of Aberdeen who undertook the analyses) provides full details of the concept, the hypothesis, the manner in which it is measured and analysed, and a full set of results. Here we provide a very brief summary.

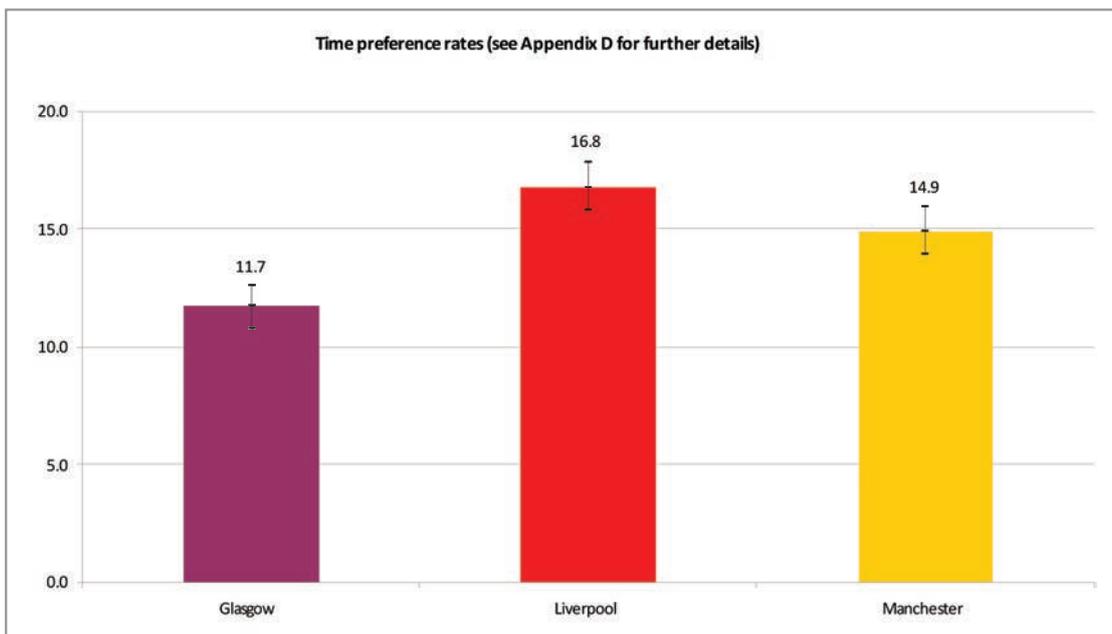
Time and risk preferences are key economic concepts which determine the 'investment' individuals are willing to make in their future health through, for example, adopting healthier lifestyles. Health enhancing behaviour choices usually involve short-term 'costs' (e.g. experiencing withdrawal symptoms when stopping smoking) in exchange for long-term benefits (being healthier, living longer). Time preferences, an indication of how 'present' or 'future oriented' an individual is, will therefore influence these behaviours. An individual with a very high time preference rate effectively acts as if tomorrow is not going to come. In addition, risk preferences also play an important role: individuals who are more risk-seeking are less sensitive to risk and therefore more likely to engage in risky health behaviours such as drug and alcohol use.

Time and risk preferences are known to vary substantially across individuals¹⁸². It was hypothesised that residents of Glasgow might have higher time preferences (being more 'present oriented') and be more risk-seeking than those living in the two English cities.

To measure time preferences, a previously validated set of survey questions were used^{31,32}: these presented the respondent with a series of 'trade-offs' between a number of days of ill-health that might be experienced, and when that period of ill-health would occur – thus, whether it was 'least bad' to be ill for a short period of time soon, or a longer period of time further away in time. For example: *which scenario is least bad? Scenario A: you are ill for 20 days in two years time; Scenario B: you are ill for 26 days in seven years time?* Depending on the respondent's answers, he or she was faced with between four and five such scenarios from which to choose, ranging from 13 days to 49 days of ill-health in scenario B for the main question. A time preference 'rate' was then calculated from the answers.

The results of the University of Aberdeen's analyses showed that, overall, time preferences among the Glasgow sample were *lower*, not higher, compared with the two English samples (Figure 92). This finding remained true after adjustment of other factors in the model (Appendix D). This suggests it is unlikely that different time preferences in Glasgow influence health behaviours and therefore status compared with those found in Liverpool and Manchester.

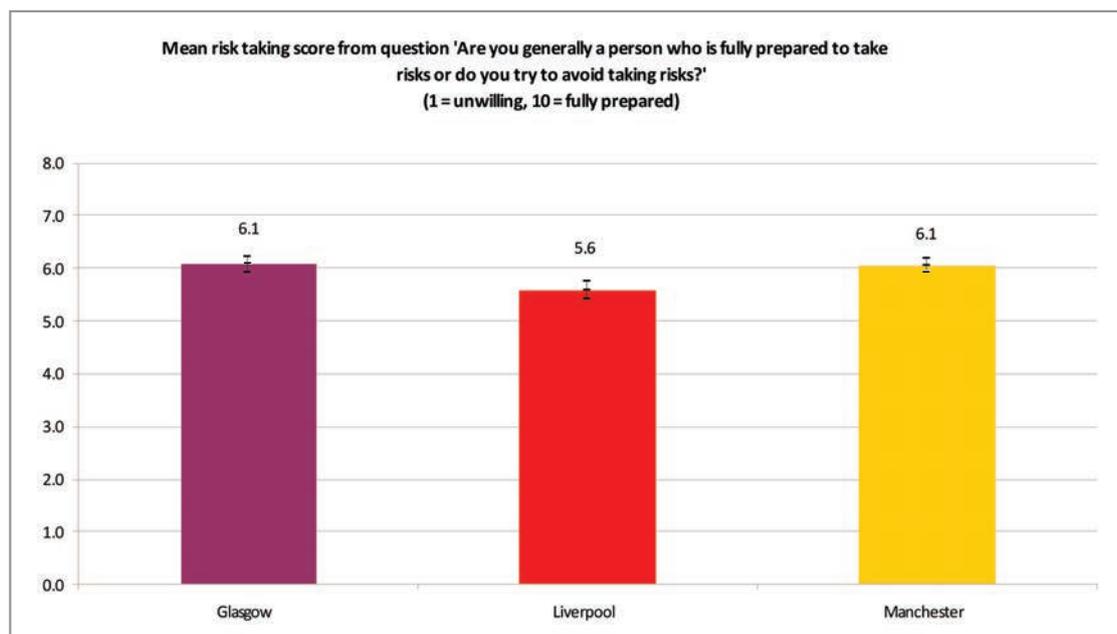
Figure 92



However, the extent to which this entirely disproves the theory is unclear, as despite it being a previously validated tool, there were concerns regarding the manner in which respondents completed, or understood, the questions. In answering the questions, a large number of the sample always chose the immediate option (Scenario A in the example above): over half of the Glasgow respondents followed this pattern of response. This was an unexpected result compared with previous studies and this possibly suggests that the ‘cognitively complex’ questions were not fully understood by some respondents. This suggestion is possibly supported by the fact that this kind of response was more likely to be given by those with low, rather than high, educational attainment. That said, however, the overall finding of lower time preferences in Glasgow was also shown for analysis of sub-samples of those with university level education. Further details are presented in Appendix D.

Risk preferences were measured by asking respondents to choose from a scale of 1 to 10, ranging from ‘unwilling to take risks’ to ‘fully prepared to take risks’. Analyses showed that likelihood of risk-taking was higher in Glasgow than in Liverpool (but not Manchester) (Figure 93), with regression modelling undertaken by the University of Aberdeen confirming this difference remained after adjustment for other factors.

Figure 93



Individualism

Are Glaswegians more individualistic than those in Liverpool and Manchester? The lower levels of volunteering (compared with both English cities) and benevolence (compared with Liverpool) described in Section 5.4 might suggest this is the case. If it is, it would be of potential relevance: it has been argued that in today's society individualism impacts negatively on levels of social connectedness and support, "impacting on everything from citizenship and social trust, cohesion and engagement, to the intimacy of friendships and the quality of family life"¹⁸³.

We can assess this further to some degree by examining the *universalism* value of Schwartz's scale, as it can be argued that it represents the opposite of individualism. As already mentioned, some commentators have also highlighted the high correlation between the values of *benevolence* and *universalism* (suggesting they may be part of the same, wider, construct)¹³⁹.

The *universalism* value is derived from three statements in Schwartz's scale, with respondents assessing the extent to which they identify with this type of person: 1) *He thinks it is important that every person in the world should be treated equally. He believes everyone should have equal opportunities in life;* 2) *It is important to him to listen to people who are different from him. Even when he disagrees with them, he still wants to understand them;* and 3) *He strongly believes that people should care for nature. Looking after the environment is important to him.*

Figure 94 shows that universalism, as defined by Schwartz's concept, is significantly less associated with respondents in Glasgow than those in the other two cities (suggesting that individualism may be more prevalent among the Glasgow sample). This is confirmed by the statistical modelling analyses, which also show significant associations between universalism and: age (analysis by age is also presented in Figure 95 below), gender (more associated with females) and education (more associated with those with educational qualifications compared with those without).

Figure 94

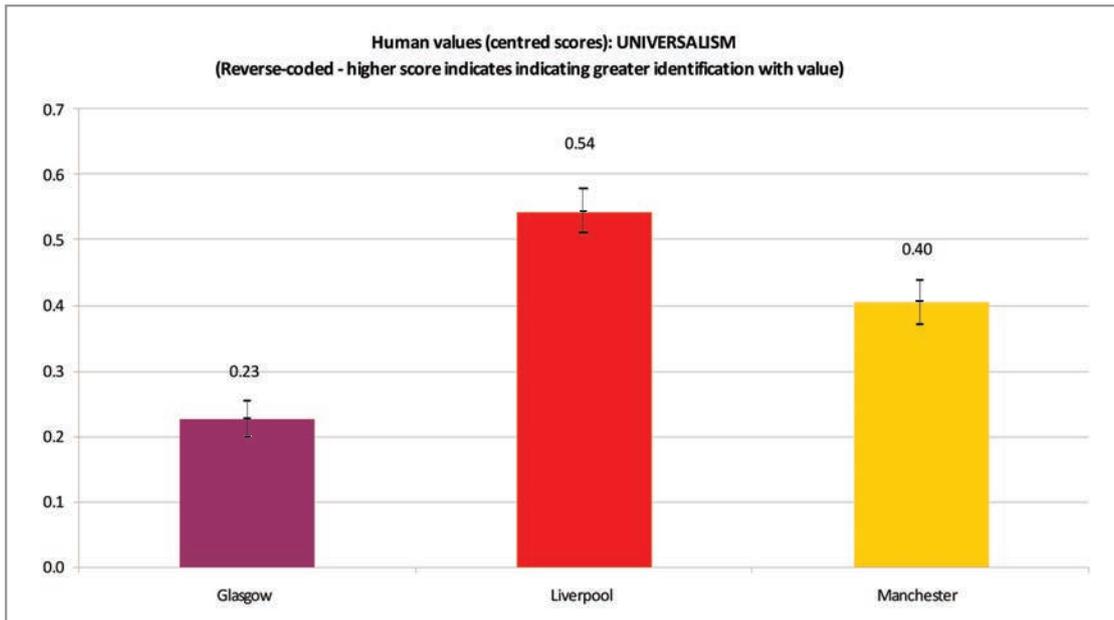
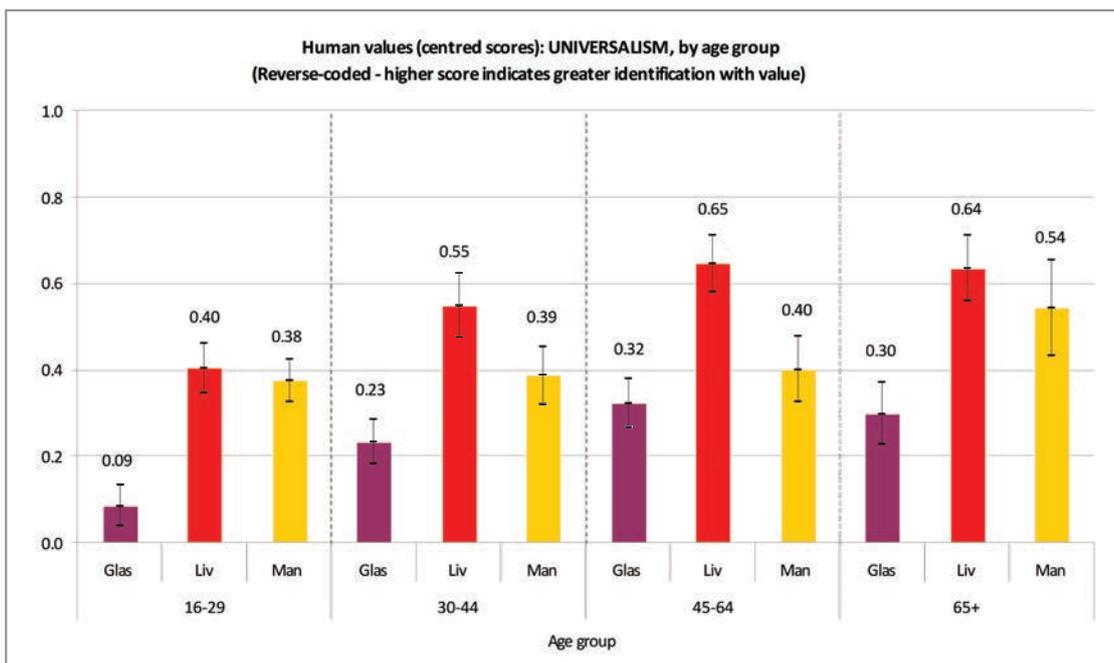


Figure 95



Appended to the 'human values' section of the questionnaire was an additional, single, question on individualism. This was not part of Schwartz's original scale, and was not included in the analyses of Schwartz's ten values. Respondents were asked to judge to what extent they were similar to this person: *He believes that it's everyone for themselves*. There was little difference between the cities in the numbers of respondents who said they felt this person was 'like me' or 'very much like me', the responses ranging from 23% in Liverpool to 25% in Glasgow. However, when the data were adjusted to control for patterns of response (as recommended for analysis of the Human Values Scale^{137,138}), individualism was shown to be significantly more associated with the Glasgow sample than the Liverpool sample, but significantly less associated than with the Manchester sample (data not shown). Although this question was cognitively tested and piloted, it has not been previously validated as a measure of individualism and we should be cautious in drawing conclusions from the analysis.

Materialism

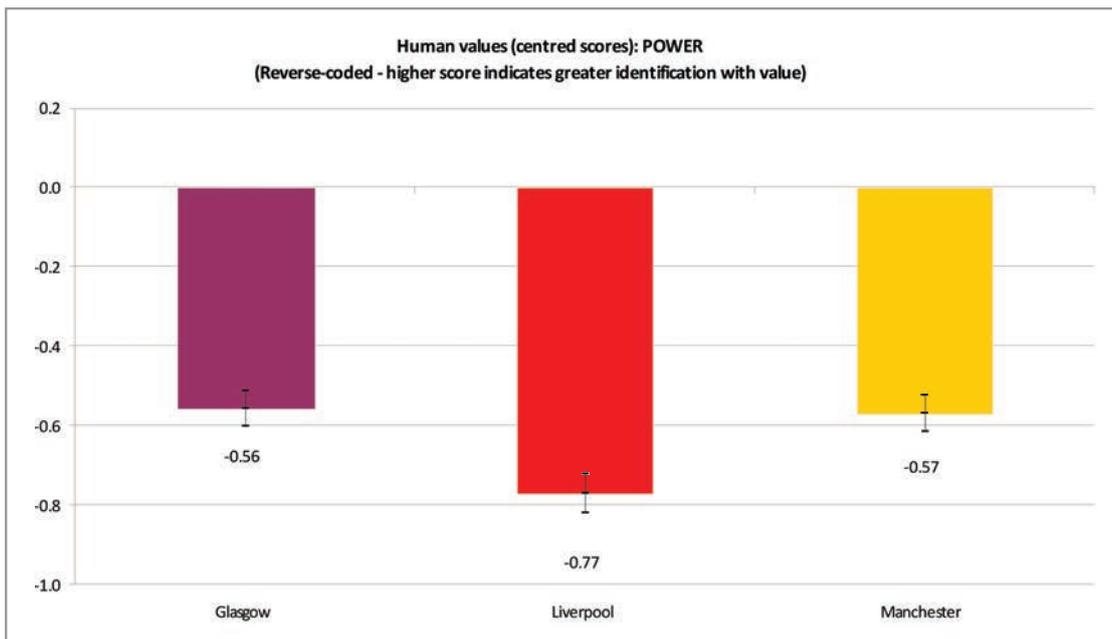
In the same way that it has been argued that individualism, as a feature of modern Western culture, has negative impacts on health and wellbeing, so too has materialism been highlighted as a related concept with similar negative health effects. Studies have pointed to significant associations between materialism and measures of life-dissatisfaction, depression, anxiety, and alienation¹⁸³⁻¹⁸⁵. It is relevant, therefore, to ask whether people living in Glasgow might be any more materialistic than those in Liverpool and Manchester.

The *power* value from Schwartz's scale is derived from two statements (again, against which respondents grade their similarity to the person described). The first is: *It is important to him to be rich. He wants to have a lot of money and expensive things*. The second, however, is clearly less relevant to the concept of materialism: *It is important to him to get respect from others. He wants people to do what he says*.

Overall, the *power* value was shown to be significantly more associated with those in Glasgow and Manchester than those in Liverpool (Figure 96). Separate analysis of the first, more relevant, individual question produced a near-identical finding (data not shown). The modelling analysis confirmed that the lower score associated with the Liverpool sample compared with the Glasgow respondents was statistically significant, and remained so after adjustment for other factors in the model^{lviii}.

^{lviii} Regression coefficients (B) (i.e. difference in mean value compared with reference category (Glasgow) after adjustment for other factors in the model): Liverpool -0.18 (95% confidence intervals -0.24, -0.13), $p < 0.0001$; Manchester n/s. The modelling analysis also showed lower 'power' scores were associated with: females compared with males; people living in less deprived compared with the most deprived areas; respondents with educational qualifications compared with those with none; those ill/disabled or retired compared with those in employment; and older respondents compared with the youngest.

Figure 96



As with individualism, an extra (piloted but not validated) statement on materialism was appended to the Human Values Scale in the questionnaire (and again, not included in the analysis of the other questions in the scale). This asked respondents to judge how like or unlike they were to someone described as: *He believes that people are judged on the possessions they own*. The adjusted (for response pattern) analyses produced a similar result to that obtained from the analysis of the additional question on individualism i.e. a significantly higher association with the Glasgow sample compared with the Liverpool sample, but a significantly lower association compared with the Manchester sample (data not shown).

Comparisons with other data

Optimism – Life Orientation Test (Revised) (LOT-R)

To the authors' knowledge, no directly relevant (e.g. population-level data for Scotland/England, or for the three cities) LOT-R data are available for comparison. However, LOT-R is a frequently used measure and in terms of wider context, some studies have shown similar, or slightly lower, levels of optimism compared with the three city samples (for example, a score of 14.3 among US college students), while others have shown slightly higher scores (for example, 15.1 among patients having just undergone bypass surgery). However, there are no data with which we can either verify the scores obtained in this survey, nor place them in the context of scores for other, more relevant, populations.

Human Values Scale: achievement, hedonism, universalism, power

No city-level data are available for comparison. As stated, however, Schwartz's scale is used within the European Social Survey (ESS), from which comparisons of scores with the UK and other countries are possible¹⁸⁶. Comparisons of scores between Glasgow (from this survey) and the UK (from the ESS), suggest that the *hedonism, achievement* and *power* are more associated with the Glasgow sample than with the UK ESS sample, while *universalism* and *benevolence* (the latter presented in as part of the social capital analyses) appeared less associated with the Glasgow sample compared with the UK as a whole. Further comparisons can be made with other European countries, although with those data available only at country- (rather than city-) level, the relevance of such comparisons is questionable.

Self-efficacy – Generalised Self-Efficacy scale

As with LOT-R, although the Generalised Self-Efficacy (GSE) scale is a frequently used scale, there are no directly relevant studies from which comparisons could be made with the scores from this three-city survey. From other studies, mean scores ranged from around 27.3 from a study of Polish adults to 31.2 and 31.9 among French Canadian students and Russian adults respectively¹⁸⁷ (the scores for Glasgow, Liverpool and Manchester were 30.4, 31.0 and 29.1 respectively). However, many of these studies were very small, and for reasons already alluded to, it is problematic to make any direct comparisons between data collected in such studies and that presented in the three-city survey.

Time and risk preferences

Previous estimates of time and risk preferences are available for the UK population. The comparison of time preference rates is complicated by the fact that estimates are known to vary substantially across question formats and health outcomes¹⁸⁸. Cairns and van der Pol³¹ used the same health outcome in a UK population sample, but open-ended rather than closed-ended questions were used. The mean rate in that 2000 study was 7.3% which is lower than the estimated rates in the three-city survey. However, it is difficult to draw any conclusions from this due to the different question formats used.

The first wave of the UK Understanding Society survey⁵⁷ estimated risk preferences using the same question used in the current study. However, the response scale was slightly different (ranging from 0 to 10, rather than 1 to 10 in the three-city survey) making direct comparison difficult. However, the mean risk preference of 5.2 for the UK in the Understanding Society survey, although predictably lower, is still in line with the figures obtained here for the three cities.

Summary and conclusions

This section has sought to assess whether, based on the data collected in the three-city survey, there appears to be any evidence for Glasgow's population being characterised by having different individual values than those living in Liverpool and Manchester. Different measures were examined, many overlapping. For the majority, however, there appears to be no evidence to support this particular hypothesis.

In terms of '**psychological outlook**', the following was noted:

- Levels of **optimism** among the Glasgow respondents were not lower than among respondents in the other two cities: the mean LOT-R score among the Glasgow sample was very similar to that of the Liverpool sample, and higher than that of Manchester.
- As measured by the 'human value' of *achievement*, **aspirations** were higher, not lower in the Glasgow sample compared with the samples in Liverpool and Manchester.
- Overlapping with the notions of aspiration and optimism, **self-efficacy** among respondents from Glasgow was not lower compared with the two other samples: the mean Generalised Self-Efficacy scores were similar in Glasgow and Liverpool, and higher than that of the Manchester sample.
- As already shown in Section 5.3, analysis of the **meaningfulness** component of the Sense of Coherence scale (assessing respondents' perceptions of the extent to which their lives have meaning and purpose) showed this to be higher, not lower, among Glasgow respondents compared with those in the English cities.

Highly related to the concept of psychological outlook, there was no evidence of a greater culture of hedonism among respondents from Glasgow.

Similarly, there was no evidence of present-orientated '**time preferences**' (reflecting less 'investment' in future health status) in Glasgow, albeit that the analyses were hindered by questions about the reliability of the data. However, there was some evidence that the Glasgow sample was more risk-seeking compared with those in Liverpool.

There was evidence of more **individualism** (or at least less universalism) among the Glasgow sample, a finding which reinforces some of the earlier results from the analyses of the social capital data.

Given the limitations of the data, it is probably unwise to speculate whether or not respondents in Glasgow were more **materialistic**.

5.7 Social mobility

As outlined earlier in the report, some commentators have suggested Glasgow's poorer health profile relative to Liverpool and Manchester may be influenced by low levels of social mobility among the city's population. As health status in any population is socially patterned, limited movement up the social 'ladder' might result in a population exhibiting poorer health outcomes than where such mobility was more evident. Authors have claimed particular aspects of Scottish culture (low self-confidence, and 'social control') are potential impediments to social mobility^{35,36}.

A detailed insight into social mobility could best be obtained from longitudinal analyses of occupation and social class across generations of the three cities' populations. This survey does not provide the data by which such an analysis could be undertaken. However, it does allow us to tentatively explore some of the cultural and motivational issues related to the social mobility hypothesis.

Analyses of the Generalised Self-Efficacy (GSE) scale were presented in the previous section. In measuring control over adversity and over one's environment, and the self-belief that one can succeed in undertaking tasks (no matter how difficult), the GSE scale would seem to effectively assess perceptions of such cultural impediments (low self-confidence, social control), as well as willingness to succeed. It has also been shown to capture aspects of 'motivation'¹⁸⁹, also crucial to the idea of social mobility.

As the previous section showed, there was no evidence of lower self-efficacy among the Glasgow sample compared with those in Liverpool and Manchester. Crucially for this hypothesis, this was true across all social classes.

Similarly, the value of *achievement* (also discussed in the previous section) is also relevant to this hypothesis – albeit that (as stated earlier, and discussed further in the final section of the report), this measure relates more to individuals' desires to succeed, rather than the practical realities of whether they have the resources to do so. Figure 97 re-presents the city comparisons of this value, while Figure 98 shows analysis by deprivation quintile. The latter shows that the mean score for Glasgow respondents is higher in four out of five quintiles, although at this level and with this sample size, the differences are not always statistically significant. The one exception is the 'most deprived' quintile, although again there is no significant difference between the mean score for Glasgow compared with those of both Liverpool and Manchester.

Figure 97

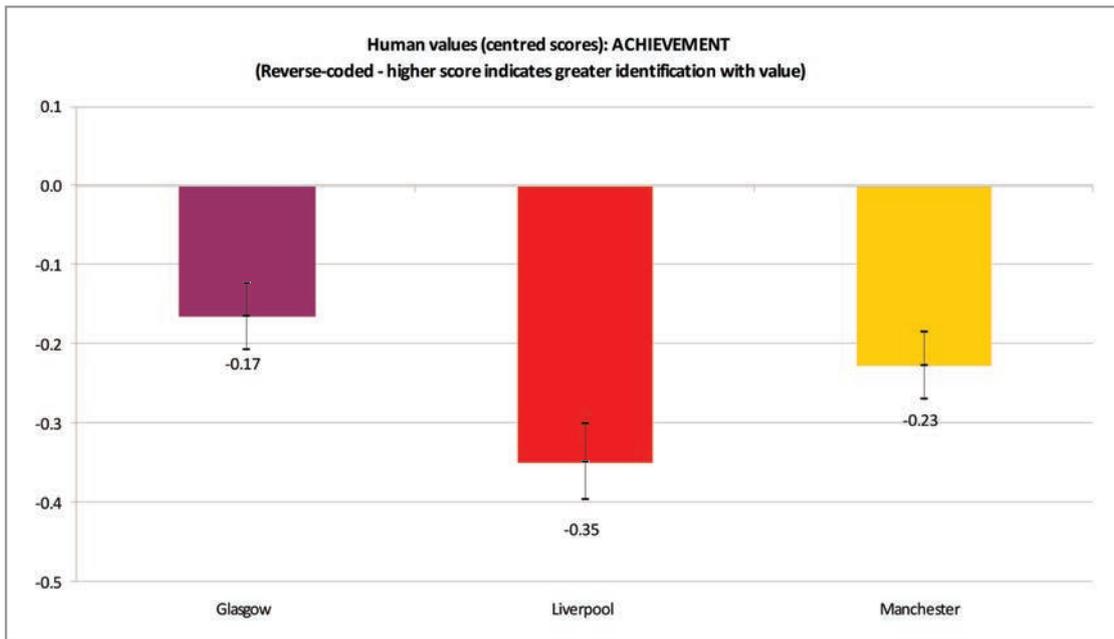
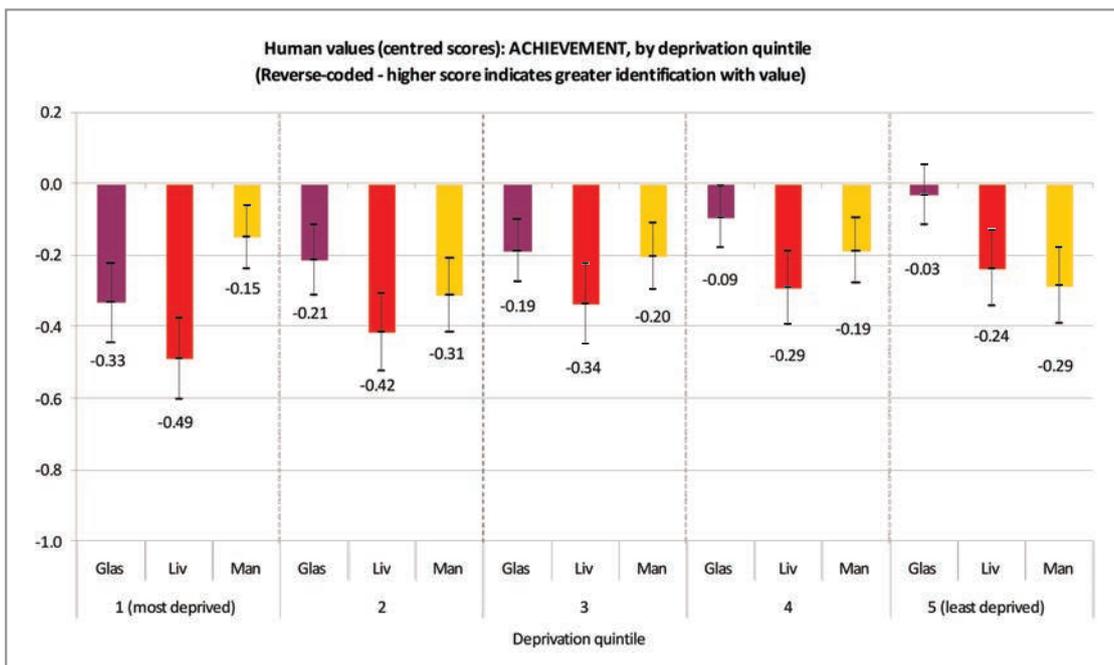
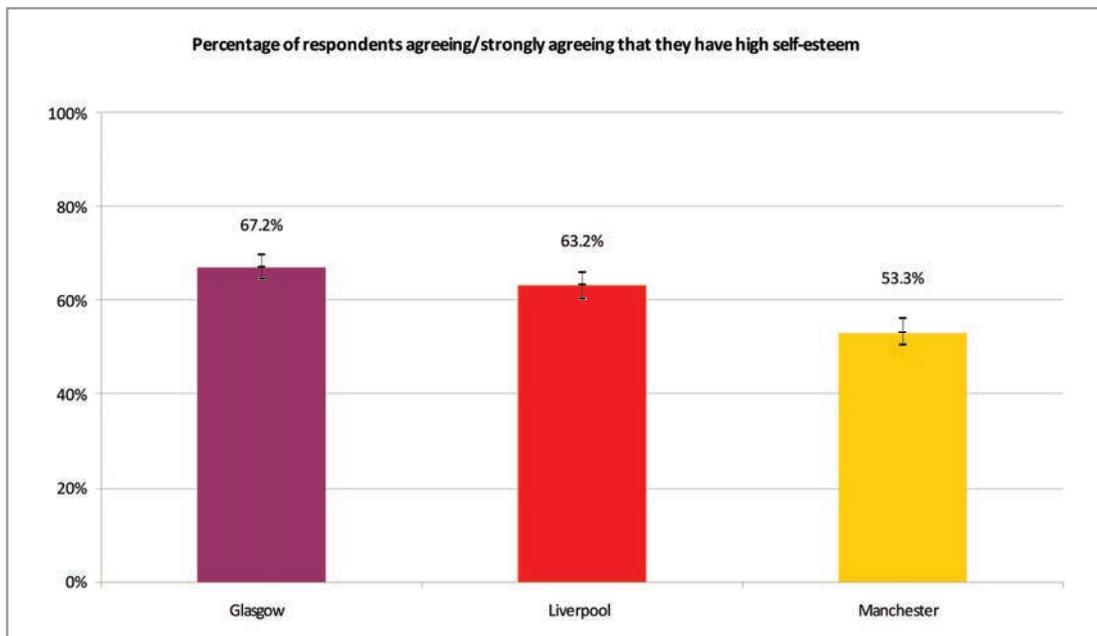


Figure 98



To further enhance our understanding of levels of self-confidence among the samples, respondents were asked about their self-esteem^{lix}. Figure 99 shows that a higher percentage of respondents among the Glasgow sample (67%) agreed or strongly agreed that they had high levels of self-esteem than in the other two cities (63% and 53% respectively), with the regression modelling analysis confirming that these city-level differences were significant. Figure 100 shows that there were even greater differences between the cities in terms of the subsets of respondents who ‘strongly agreed’ they had self-esteem (differences again confirmed in multivariate regression analyses). Analysis by social class showed clear social patterning for Glasgow and Manchester, but not for Liverpool, while also showing that the greatest difference between Glasgow and the English cities in relation to those ‘strongly’ agreeing was in social grades A and B, with little significant differences in comparisons of other social classes (Figure 101).

Figure 99



^{lix} Note that – and as stated previously in the Methods section – for reasons of space, previously validated survey instruments to measure self-esteem (such as the Rosenberg scale) were not used in the questionnaire. The rather simple question used in its place, although piloted and tested, had not been previously validated. Caution, therefore, should be exercised in interpreting the results of these analyses.

Figure 100

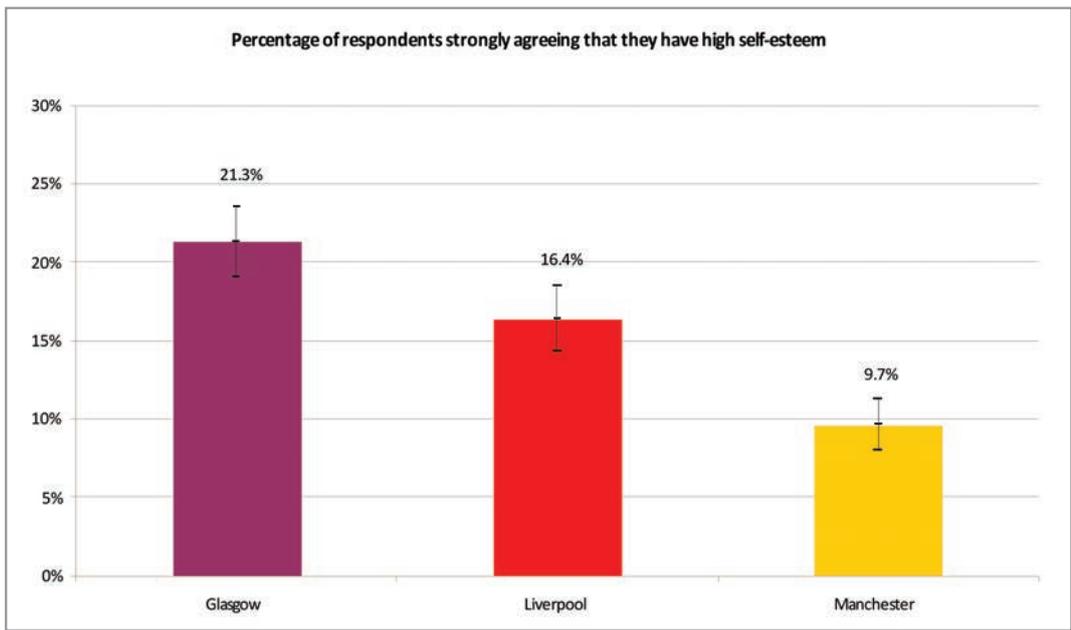
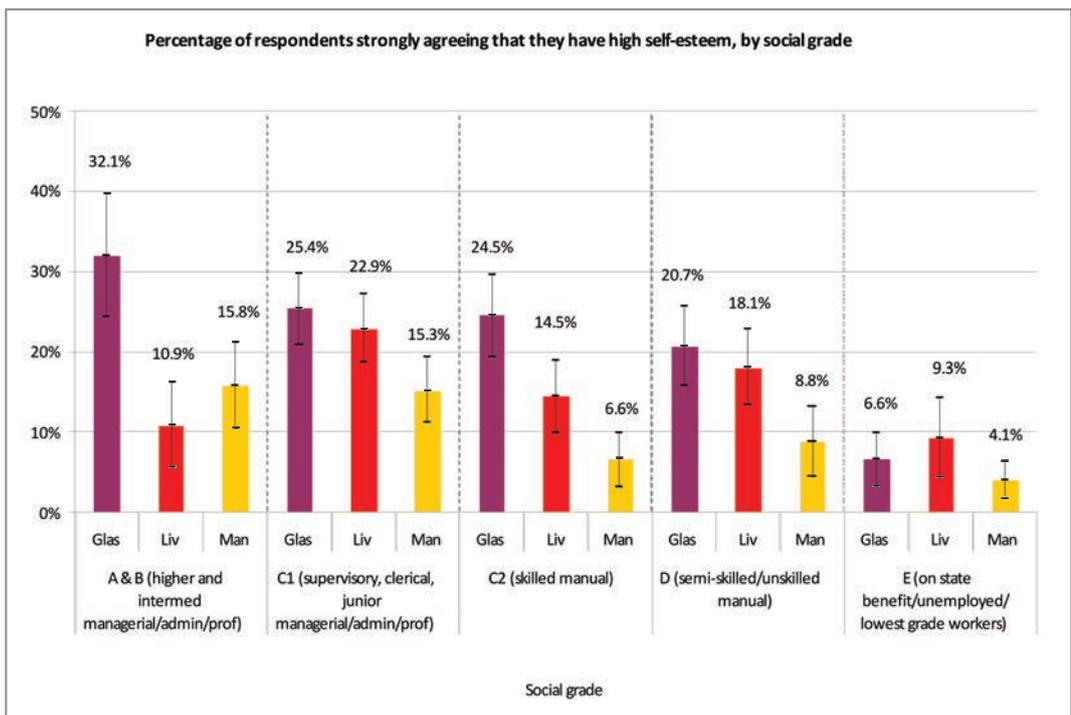


Figure 101



Summary and conclusions

The available evidence suggests this is an unlikely hypothesis: however, it is clear that a considerable number of caveats apply to all the measures presented in terms of their ability to capture the reality of social mobility among a population, not least in the tension between the *motivation* and *desire* for social mobility, and the practical realities involved in achieving such aims. Similarly, the notion of self-esteem is open to different interpretations. We will return to these issues in the Discussion section of the report.

5.8 Anomie (boundlessness/alienation)

Background

As briefly discussed in Section 3, another hypothesis put forward to explain Glasgow's worse health outcomes compared with similar cities such as Liverpool and Manchester has focused on the notion of anomie. Anomie was introduced as a concept in the 19th century by the French sociologist Emile Durkheim to describe the breakdown of social and moral norms that follow periods of economic and social change^{37,38}. Durkheim argued that such change can bring about less regulated, less integrated societies in which previous social norms no longer apply and no longer control the behaviour of individuals. As a result, 'anomie' leads to increasing levels of crime and 'deviant behaviour'. Durkheim focused on suicide as one manifestation of a more generalised set of self-destructive behaviours. Anomie has also been used to explain how the socioeconomic disruption precipitated by the collapse of the USSR led directly to deteriorating health in ex-Communist countries (most notably Russia) from the early 1990s onwards¹⁹⁰. The latter analysis focused on the reduction in life expectancy, the widening of health inequalities between regions and the striking impact of substance misuse, especially alcohol related harm, among men – all factors which have their parallels in Glasgow^{2,4}, a city that in recent decades has experienced the economic and social transformation from an industrial to post-industrial, service sector-based economy^{2,8,9,191}.

When considered as a potential explanation for Scotland's 'excess' mortality in the 2011 'hypotheses' report, the concept was described in terms of a more general heading of a 'culture of boundlessness and alienation' to distinguish it from the 'underclass' theory³⁹⁻⁴² with which anomie has become associated – and which has been attacked for 'demonising' the poor. The hypothesis arguably has parallels with the 'culture of poverty' thesis proposed by Murray and others, which proposes that poverty is less the cause of social problems, but instead that social problems result from cultures endemic within the poorest groups in society^{41,43}.

Results

The 'Sense of Coherence' (SoC) scale, its meaningfulness sub-scale, and some of the individual questions included within the SoC are all relevant to this hypothesis. The questions within the scale include, for example: how often respondents feel they 'don't really care about what goes on' around them; the extent to which their life to date has had 'clear goals or purpose' (from 'none at all', through to having 'very clear goals and purpose'); the extent to which daily activities are perceived as 'a source of deep pleasure and satisfaction' or 'a source of pain and boredom'; and how frequently respondents feel that 'there's little meaning' in the things they do in their daily life.

As already discussed, both the overall SoC scale and its ‘meaningfulness’ sub-scale were shown to have significantly higher mean scores among the Glasgow sample compared with the English samples, and this was the case in the vast majority of stratified analyses (age, gender, social class and so on). Analyses of the individual questions generally showed either a similar pattern of higher scores among Glasgow respondents (for example, ‘caring what goes on’ – Figure 102) or, for one or two questions, they showed similar scores for the Glasgow and Liverpool samples, both of which were higher than the equivalent scores for Manchester (for example, the ‘perception of daily activities’ – Figure 103). Therefore, none of the analyses of the SoC data supports the ‘anomie’ hypothesis – although whether this scale accurately captures this notion, or whether any scale could accurately capture it, is a different issue, and one we return to in the final section of the report.

Figure 102

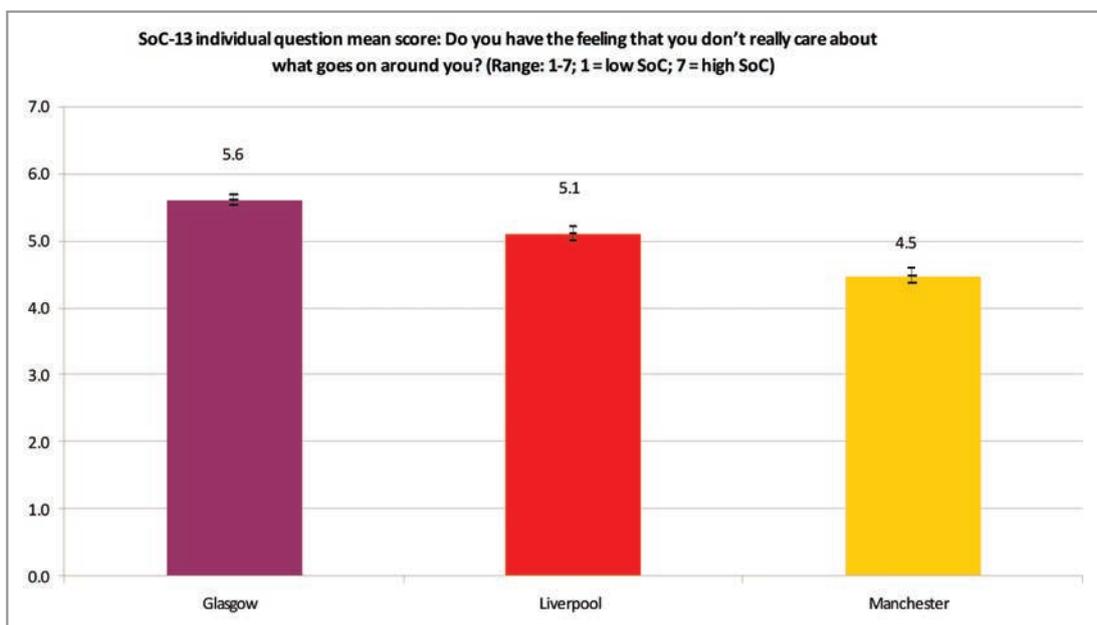
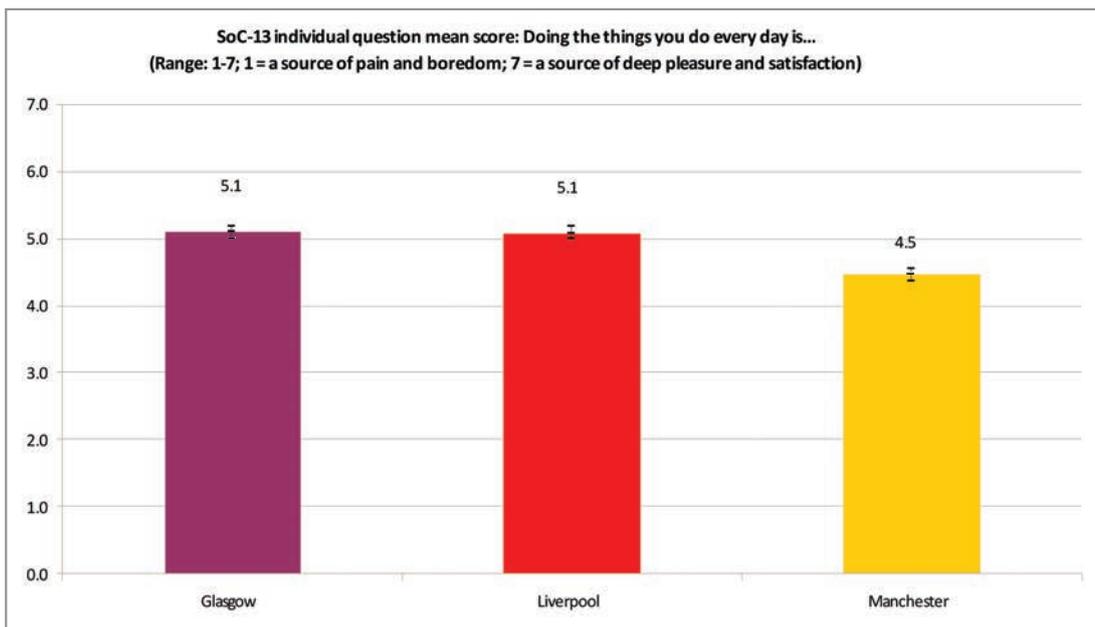


Figure 103



If anomie is defined as the breakdown in, or lack of, social values or norms (resulting potentially in greater risk-taking and self-destructive behaviours), then the *conformity* value of Schwartz's scale is, arguably, also relevant to this hypothesis, as it captures respondents' perceptions of the importance of such social norms. It is derived from two statements in Schwartz's scale^{ix}:

He believes that people should do what they're told. He thinks people should follow rules at all times, even when no one is watching.

It is important to him always to behave properly. He wants to avoid doing anything people would say is wrong.

^{ix} Note that for simplicity, we again use the male versions of the questions here.

Figure 104 shows that in these terms, conformity is significantly *more* associated with the Glasgow sample than with those in Liverpool and Manchester. Figure 105 shows that the greatest differences are in comparisons of the *least* deprived areas, with no significant differences shown in comparisons of those in the *most* deprived areas. Figure 105 also shows a clear social gradient among Liverpool and Manchester respondents (whereby conformity is more associated with those living in more deprived areas, rather than the other way round), although much less so among respondents in Glasgow. Similar results were obtained from analyses by social class rather than area-based deprivation. Conformity is significantly more associated with females than males (data not shown) and, unsurprisingly, with older rather than younger respondents (Figure 106). The statistical modelling analyses confirmed these differences between cities, age groups, and genders as significant, and also showed conformity to be significantly *more* associated with ethnic minorities, married respondents (or those in a civil partnership), and those with no educational qualifications.

Figure 104

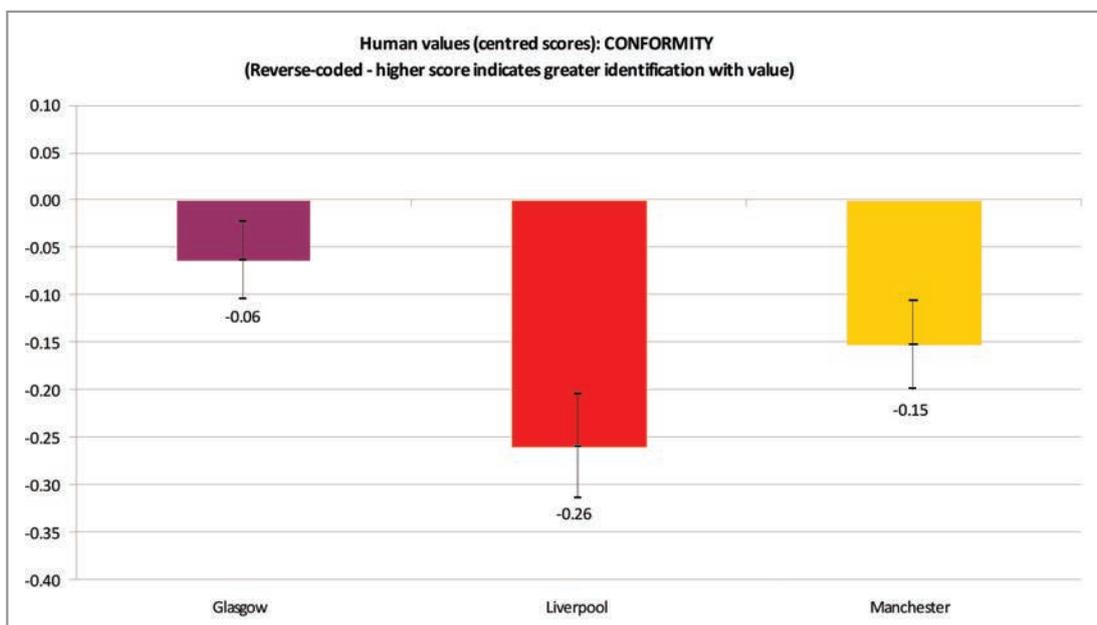


Figure 105

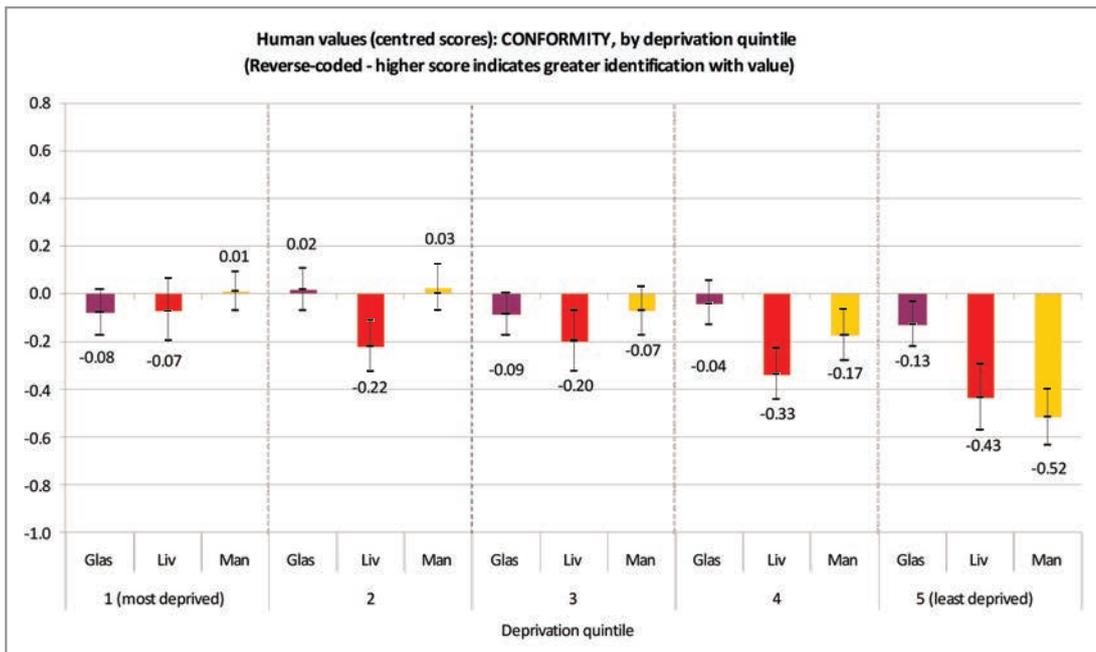
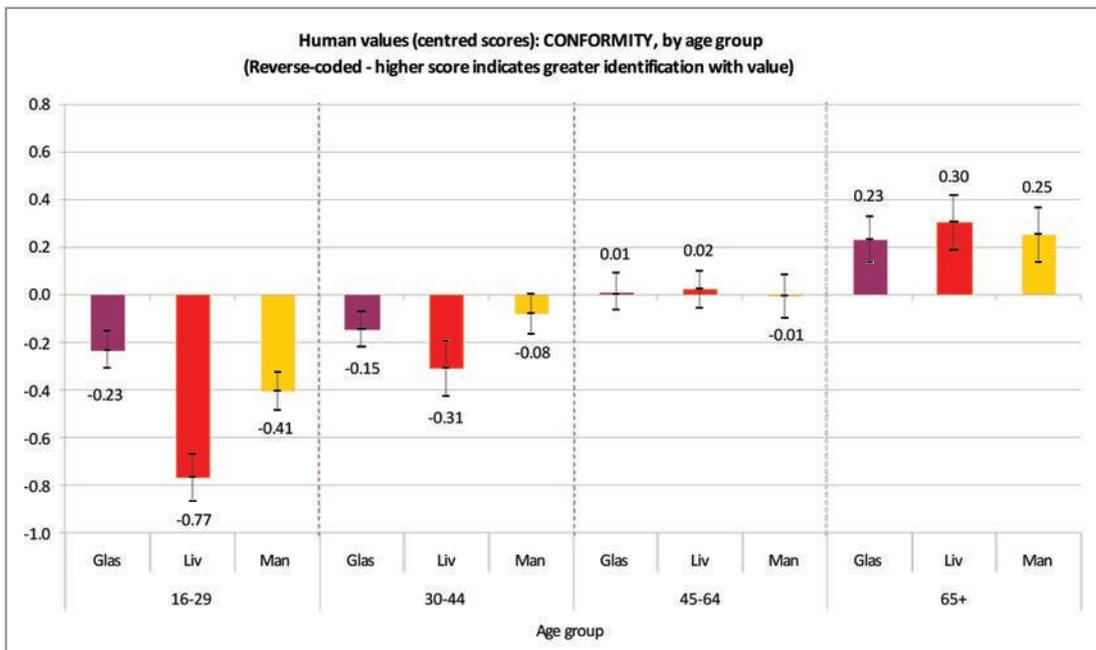


Figure 106



Summary and conclusions

There are clear difficulties in measuring a concept such as anomie within a population survey such as the three-city survey. However, from the available data, and among these samples of respondents, there does not appear to be evidence of relevant characteristics among the Glasgow respondents that would support this thesis.

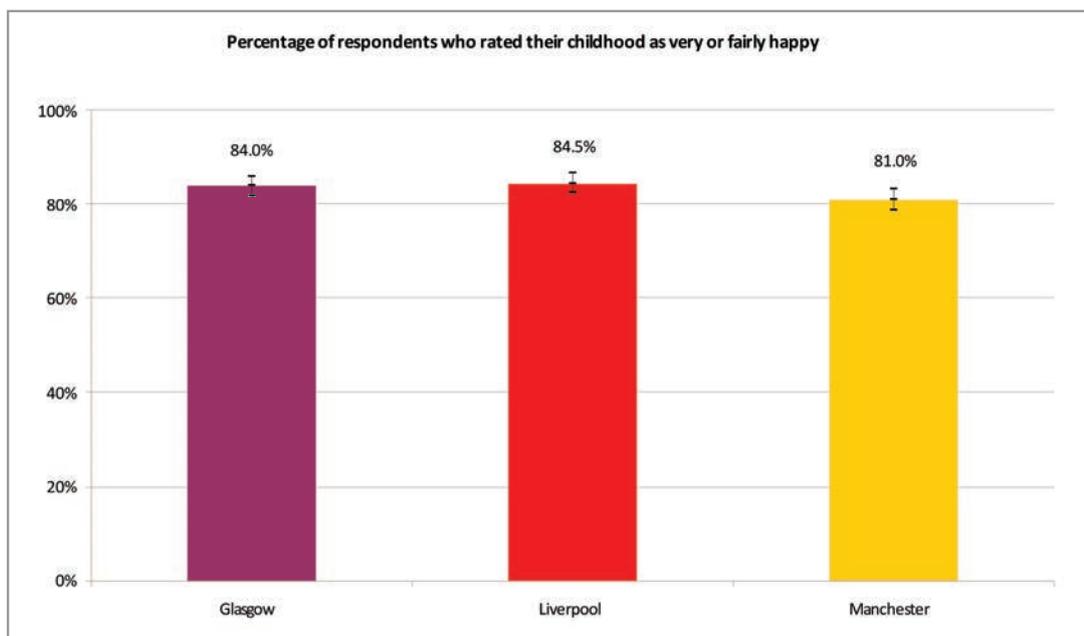
5.9 Early years

As discussed in an earlier section of the report, although the hypothesis that different childhood experiences may have potentially important effects on the adult health profile of Glasgow compared with the two English cities is a very important one, it was not a major focus of this survey. This was because a separate study, the results of which were reported earlier in 2013, looked in detail at this hypothesis, on the basis of analyses of a number of well-known UK longitudinal cohort studies⁴⁴. The study found virtually no relevant evidence of differences in early years' experiences between children born between 1946 and 2000. This was true of comparative analyses of cohort members in Scotland and England, and more specifically (where sample sizes allowed), in the 'city regions' of Glasgow and the Clyde Valley, Merseyside and Greater Manchester.

These negative results are confirmed by analyses of some limited data collected for this topic in this three-city survey. Two simple questions were included. The first asked respondents to rate their childhood in terms of happiness, with five possible responses ranging from 'very unhappy' through to 'very happy'. A similar question asked participants to rate their childhood relationship with their parents (or guardian), with responses ranging from 'very bad' to 'very good'.

Figure 107 compares the percentages of each sample who reported that their childhood was 'very happy' or 'fairly happy'. In each city the vast majority of respondents reported that this was the case: 81% in Manchester and 84% in Glasgow and Liverpool. The same general pattern was evident in analyses by age, gender, deprivation quintile and social class. After adjustment for other factors in the regression modelling, the lower figure for Manchester was shown to be statistically significant. The modelling also showed a significantly lower likelihood of reporting a very or fairly happy childhood among the unemployed, those too sick to work, those looking after home or family (all compared with those who were employed), and those who were in poor health (compared with those in good health).

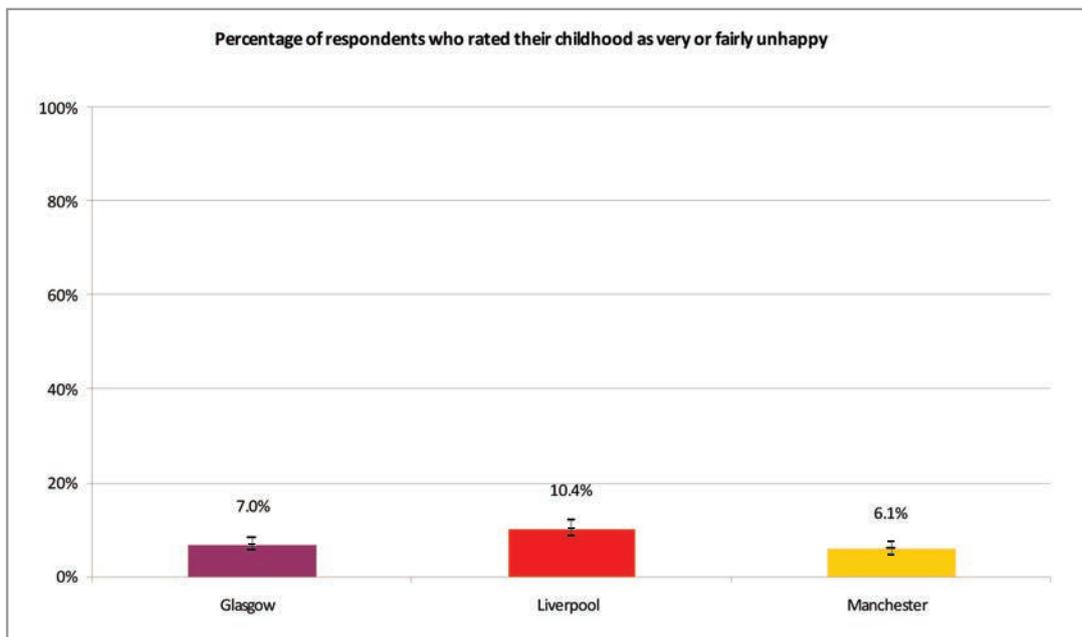
Figure 107



Significantly higher numbers of the Glasgow and Liverpool samples compared with the Manchester sample reported that their childhood has been 'very happy': 63% and 64% compared with 46% respectively (Appendix A).

A higher percentage of respondents in Liverpool (10%) compared with Glasgow (7%) and Manchester (6%) reported that their childhood had been 'fairly unhappy' or 'very unhappy' (Figure 108), a difference confirmed as significant by the statistical modelling analyses. The latter also showed similar variable categories as above (unemployed, sick/disabled, in poor health) to be associated with the likelihood of reporting an unhappy childhood. Very few respondents reported a 'very unhappy' childhood, although the percentage was again higher in Liverpool (5%) than in Manchester and Glasgow (1% and 2% respectively) (Appendix A).

Figure 108



Similar results were obtained from the analyses of the questions on childhood relationship with parents. Figure 109 shows the percentage of childhood relationships with parents rated as 'very good' or 'fairly good' were 80% (Manchester), 86% (Glasgow) and 89% (Liverpool), with those differences shown to be significant after adjustment for other factors in the modelling analyses. There were no significant differences between the three samples in terms of perceptions of childhood relationship having been 'very bad' or 'fairly bad' (Figure 110).

The results of the modelling analyses for this question were broadly similar to those for the question on perception of childhood reported above.

Figure 109

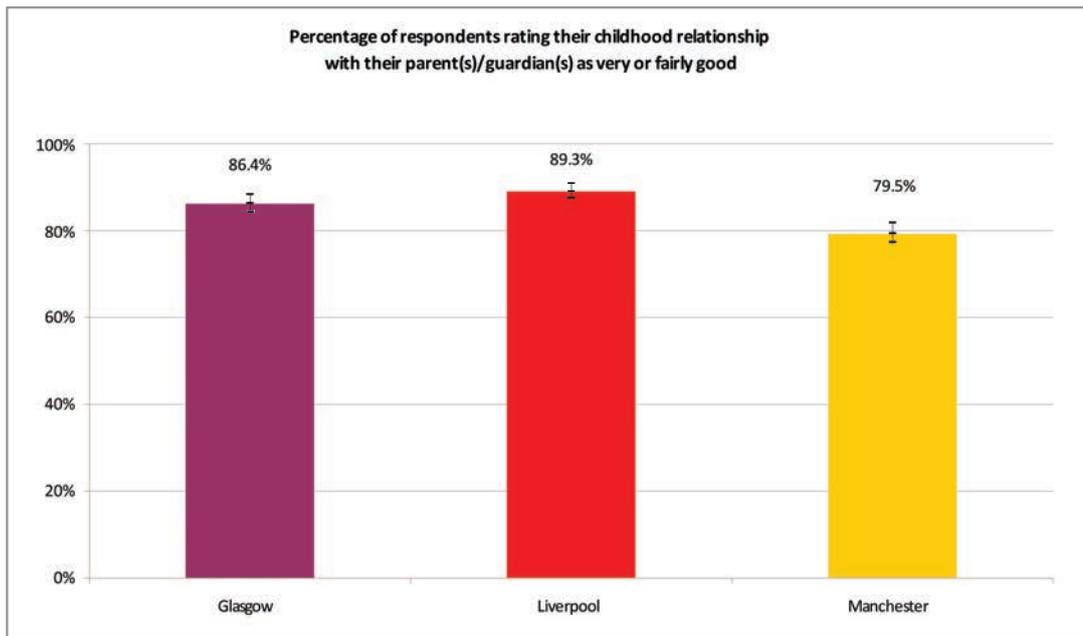
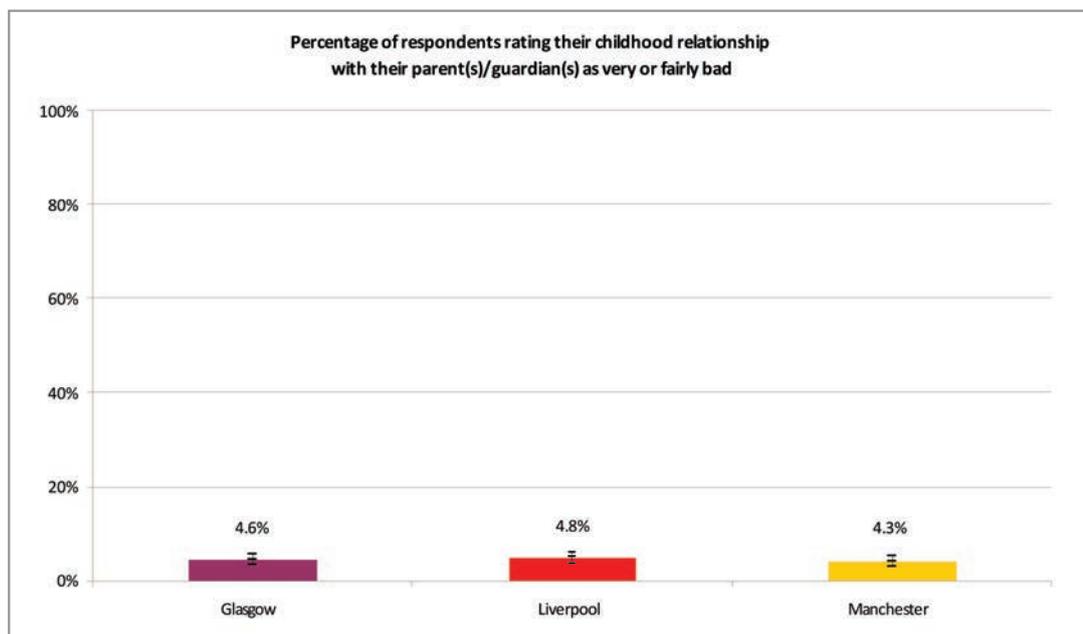


Figure 110



Summary and conclusions

This was a very limited part of the survey and was not aimed at producing a detailed insight into respondents' childhoods and early years' experiences. What data were collected, however, did reinforce the findings of other, related, work which have suggested that although experiences in childhood are important predictors of wellbeing in later life, there is little evidence to support the hypothesis that such experiences have been different for residents of Glasgow compared with those in Liverpool and Manchester.

Discussion

6. Discussion

In this final section of the report we consider the general strengths and weaknesses of the project, summarise the overall findings, consider a number of specific issues relating to the seven main sections of the report, and highlight potential future work.

Strengths and weaknesses

This project sought to collect, and analyse, new data for seven separate, albeit to some degree overlapping, hypotheses (and ‘sub-hypotheses’) that have been proposed to explain Glasgow’s ‘excess’ poor health in comparison to other, similar, UK cities. This new evidence is important in both highlighting some potentially relevant differences between the cities’ populations in relation to some topics, and in also suggesting that some of the other hypotheses appear to be less likely explanations.

However, there are also a number of important caveats and weaknesses associated with the data which we have to recognise and acknowledge.

First, the analyses have been based on cross-sectional survey data collected in 2011: these data do not, therefore, allow any measure of impact, or otherwise, on individuals’ subsequent health outcomes. Current mortality rates in all three cities have been determined by complex interactions of different factors over decades: to quantify the potential impact of the measures recorded in this survey would require a much larger study to have been established many years ago. We cannot, therefore, relate current cross-sectional data drawn from survey samples to contemporary whole population level mortality trends. This complexity is highlighted by some of the results presented in this report: for examples, measures of optimism and self-efficacy, which have been shown to be significantly associated with health outcomes, were found to be lower in Manchester compared with Glasgow, despite mortality rates being considerably higher in the Scottish city.

Second, any population survey, especially one based on such a sample size and with an overall 55% response rate, is unlikely to be *entirely* representative of its target population: we have to be aware that it is probable that not all sections of society are represented within the collected data. Furthermore, Section 5.1 confirms that there are some important differences between the socioeconomic profiles of the samples compared with those produced by other data sources including, for the two English cities, the 2011 Census^{lxi}; and Manchester’s sample is particularly problematic in this respect, being over-represented by the unemployed and some economically inactive groups of that city’s population.

^{lxi} As already stated, detailed 2011 Census data for Glasgow were not available at the time of undertaking the analyses, nor writing of this report.

The data are also limited by the inherent difficulty in capturing some of the hypotheses by means of survey instruments; and where new questions have been used, although piloted prior to data collection, they have not been validated in the same way that the other, extensively used, question sets and survey scales have been in other streams of research.

Equally, however, we should not overlook the considerable strengths of this project. Given the lack of other available data, the high-level research questions posed at the outset of this project (i.e. were there any differences between the cities' populations in relation to the various theories that have been suggested?) could only have been explored by means of a new population survey. This has resulted in the creation of a unique dataset which includes population measures that had never previously been recorded, and has therefore advanced our knowledge of the populations of all three cities. The response rate is far better than that achieved in many other local^{192,193}, regional¹⁹⁴⁻¹⁹⁶ and even national^{65,197} surveys, and this relatively high rate was obtained across all neighbourhood types (deprived and non-deprived) in all three cities. Comparisons with other data sources show that for many characteristics, the survey samples *are* highly representative, while all the analyses that were undertaken entailed a multivariate regression modelling component, ensuring that any reported differences between the cities were independent of the characteristics of the survey samples. Furthermore, recent analyses of Scottish and English health survey data, based on samples with similar response rates to the three-city survey, show very clear evidence of 'excess' mortality among Scottish, compared with English, respondents, levels of which are on a par with those seen in analyses of 'total' population registries¹³. Thus, populations at risk of higher rates of mortality have been shown to be included within, not excluded from, these types of surveys, emphasising the usefulness and appropriateness of this type of data collection exercise. Finally, although identification and use of some survey instruments was problematic for some of the hypotheses under consideration, most of the questionnaire was based on previously validated survey scales or question-sets.

Overall findings

The limitation of using current cross-sectional data to explore hypotheses relating to current mortality differentials has been highlighted above. Given this, we must be cautious in drawing conclusions. All we can do is assess, based on the evidence presented here and our knowledge of other published research findings, the extent to the various hypotheses now appear more or less likely to influence 'excess' mortality in Glasgow. On that basis we can now perhaps best categorise the various hypotheses under the following three headings: plausible; less plausible; and still unknown.

It appears **plausible** that there are differences in some aspects of social capital (trust and reciprocity, and social participation) between Glasgow and the two English cities which could potentially impact on levels of health and wellbeing in the population: differences between the samples in social participation, trust and reciprocity appear clear and consistent. It appears **less plausible** that Glasgow's population suffers from a lower 'sense of coherence', from the effects of different childhood experiences^{lxii}, or that the population is more associated with particular 'values' that might have adverse impacts on health, at least in relation to psychological outlook (lower optimism, lower aspirations), hedonism, and 'time preferences' (albeit that there was some evidence that Glasgow's population may be more risk-seeking than those in Liverpool). It is probably **still unknown** whether the 'anomie' hypothesis holds true: the data presented here suggest it is unlikely, but whether this kind of population survey is the best means by which to examine the hypothesis is unclear^{lxiii}; similarly, it is probably fair to say that data weaknesses impair our ability to assess the evidence for the impact of political effects (albeit some evidence of more negative perceptions of the 1980s did emerge from the Glasgow sample), differences in social mobility, and higher levels of materialism.

The evidence for all these hypotheses is discussed in more detail below under these three broad headings.

'Plausible'

The similarities between Glasgow, Liverpool and Manchester (and especially between Glasgow and Liverpool) have already been discussed in the introduction: the cities share similar histories and character, as well as the effects of similar social and economic experiences in recent decades. The latter is reflected in the remarkable parallels that emerge from analyses of routine data, and further similarities are apparent from the analyses of these survey data: for example, similar LOT-R and GSE scores, and similar childhood experiences, among the Glasgow and Liverpool samples. Where clear differences become apparent, therefore, they are of potential interest: and very clear and consistent differences emerge from the analyses of some, although not all, indicators of social capital.

^{lxii} This is stated partly on the basis of the limited data presented within the report, but more in relation to the more detailed evidence presented in the separate GCPH report already cited⁴⁴.

^{lxiii} Other methods have been used in attempts to measure the concept of anomie. Perhaps the best known is the five-item 'Srole' scale¹⁹⁸ developed in the 1950s. This includes questions on: perceived futility of engaging with public officials; the need to 'live for today' and not worry about tomorrow; perception that the 'lot of the average man' is 'getting worse' rather than better; that the future holds a bleak outlook; the lack of being able to rely on people for support. The scale has, however, been criticised as being less a measure of anomie and more of hopelessness and despair. It also clearly overlaps with questions within the LOT-R and SoC scales. Others include the Dean Alienation scale¹⁹⁹ developed in the 1960s, as well as various other alienation-related scales (e.g. Nettle²⁰⁰, Middleton²⁰¹, and Streuning & Richardson²⁰²), many of which also overlap with aspects of SoC, especially its *meaningfulness* component.

These differences relate principally to elements of social participation, trust and reciprocity. The first is evidenced by lower rates of volunteering and, more contentiously, lower levels of religious affiliation in Glasgow. Significantly lower levels of trust were seen in Glasgow in terms of both ‘general’ trust of people, and also more specific trust of people in the neighbourhood. Lower reciprocity was evidenced by responses to questions on the exchange of favours with neighbours and the return of a lost wallet, but also in relation to individual values of benevolence and universalism.

How might differences in these concepts impact on different levels of health and wellbeing in the populations? The research literature suggests a number of potential causal mechanisms. Some commentators have argued that at the city or state level (as opposed to the neighbourhood level), greater social capital impacts on health via political processes: it is argued that social participation (e.g. in voluntary groups, churches) nurtures skills that can lead to political engagement and activity, and greater political activity across the social gradient results in government policies more beneficial for the least advantaged members of society^{116,203-206}: “who participates in politics matters for political outcomes, and in turn the resulting policies have an important influence on the opportunities available to the poor to lead a healthy life”¹¹⁶. However, the ‘beneficial’ policies relate primarily to better social support provision: this is less relevant to comparisons of UK cities as welfare policies in the UK are not devolved to local governments^{lxiv}. More relevantly, however, at the neighbourhood level three mechanisms have been suggested as potentially impacting on the health of populations²⁰⁷: social and psychological support processes (i.e. greater social support in times of need, and “psychosocial processes... providing affective support and acting as [a] source of self-esteem and mutual respect”); more positive health behaviours (i.e. influenced both by informal social control (preventing damaging behaviours such as alcohol and drug abuse), and by an increased likelihood of healthy behaviours such as physical activity being adopted); and provision of access to services and amenities (i.e. based on evidence that more socially cohesive communities can safeguard relevant services (e.g. that might be threatened from budget cuts) through effective local action).

^{lxiv} Kawachi (who is quoted here) cites evidence of greater political engagement correlating with greater care of members of society through more generous social security systems. In contrast, and related to this, ‘the lower the levels of trust between citizens, the more hostile the social policies geared toward the poor’¹¹⁶. However, evidence is from national and US state governments which have control over welfare legislation, and not from UK local governments which do not. However, this is arguably still of potential interest given the evidence from the three-city survey of a more ‘politicised’ Liverpool sample (e.g. in terms of, for example, having been more engaged in anti-government demonstrations in the 1980s), alongside the particular brand of (‘Militant’) local politics that was evident in Liverpool in that decade. On the other hand, however, this survey also points to high levels of powerlessness (in terms of belief in being able to bring about change) across *all three* cities (i.e. including Liverpool), and we also know from other data sources that political engagement as measured by voter turnout is comparably low in all three cities in relation to elsewhere in the UK.

A number of similar, and overlapping, potential pathways have been proposed to explain the apparent links between religious attendance and better health outcomes (including lower mortality): greater social networks, support and integration; less association with damaging lifestyle factors (alcohol, drugs, violence, risky sexual behaviour and so on) through ‘social regulation’; and, more specific to religious social capital than other forms, increased psychological resources and coping mechanisms^{128,131,208-213}. Linking these forms of social capital further is the fact that religious participation has also been shown to encourage volunteering, itself a component of social participation with known links to better health outcomes¹²⁸. As stated earlier, however, there is a considerable weakness in the use of religious *affiliation*, as opposed to *participation*, in the survey: clearly the one does not necessarily entail the other, as a number of commentators have pointed out¹³³⁻¹³⁶.

Aside from these noted differences between the populations in terms of trust, reciprocity and social participation, two other results from the analyses of social capital measures are worthy of further comment. The fact that significantly fewer respondents in Glasgow reported ‘problems’ (e.g. vandalism, graffiti, rubbish lying about) in their neighbourhood compared with those in Liverpool and Manchester, a finding generally true of all neighbourhood types (deprived and non-deprived), is of interest, and shows a distinction between the physical and social environments (or perceptions of them) in the cities. It is also important to note the low levels of civic participation evident across all three cities (something also reflected in relatively low voter turnout in elections in all three cities, as shown previously¹⁷), including high levels of powerlessness in terms of perceptions of being unable to effect change in their neighbourhoods (and cities and country).

‘Less plausible’

Although there has been some criticism of Antonovsky’s Sense of Coherence (SoC) scale in a Scottish context²¹⁴, the research literature generally confirms that the scale is a good, validated measure of the concept Antonovsky sought to capture i.e. people’s resilience to the negative impacts of stress on their health and wellbeing. The results from the analyses of the three-city survey data were unequivocal: SoC was significantly higher among respondents of the Glasgow sample compared with those in the Liverpool and Manchester samples. This was true of both sexes, all age groups and nearly all social classes. This would appear to render the hypothesis (i.e. that SoC was lower) unlikely.

To a large degree, the same can be said of the ‘individual values’ theory, especially in relation to psychological outlook (lower optimism, lower aspirations) and the related concepts of hedonism and time preferences. Results from analyses of a number of different measures do not support the hypothesis: optimism, optimistic self-belief (in terms of self-efficacy), aspirations (as assessed by the importance of the *achievement* value) were *not* lower in Glasgow, nor was there any evidence of the sample in Glasgow identifying themselves

as hedonistic more than in the other two cities. No convincing evidence of different time preferences among Glasgow respondents emerged (although data concerns mean we can be less sure of the results of those analyses). Where there were differences in individual values, these reinforced the social capital findings: lower levels of universalism (suggesting higher levels of individualism) and benevolence are entirely consistent with the lower levels of reciprocity, and are, therefore, more relevant to that particular hypothesis.

Still unknown

The political effects hypothesis is important, but also complex. Part of the complexity lies with the assessment, theorising and measurement of its potential impact on population health. It is highly debateable if any elements of that complexity could be captured within a questionnaire as part of a cross-sectional survey undertaken in 2011. A longitudinal study, embracing both qualitative and quantitative data collection methods, starting in the 1980s and continuing for several decades would probably have been required as part of any concerted attempt to prove or disprove this hypothesis. Clearly no such study has ever been created.

That said, our analyses did highlight some city differences, including the suggestion of more negative general perceptions of the 1980s on the part of the Scottish sample that might be worth further investigation. More generally, the questions included within the political effects section of the questionnaire were also helpful in terms of, for example, confirming and quantifying both the negative perception of, and low levels of engagement with, current local and national government structures, as well as presenting a similar negative profile in terms of perception of, and trust in, those in power in the 1980s. The fact that few other city differences emerge from those analyses is also of interest, and further highlights the similarities in the political, economic and historical character of the populations.

Social mobility is another hypothesis that could be perhaps be best measured by other means such as the use of longitudinal data analysed over many decades. The measures included within this survey captured the respondents' motivations and aspirations to succeed, and found nothing to suggest there was less importance attached to these by Glaswegians of all social classes than elsewhere (indeed, for some measures the opposite was true). Clearly, however, successful social mobility depends on more than simple motivation: many obstacles might stand in the way that would not be apparent from a cross-sectional survey. That said, these data do allow us to consider two specific obstacles that have been suggested as impeding social mobility in a Scottish context: lack of self-confidence, and social control. Both seem unlikely factors on the basis of the data analysed here, although the high levels of self-esteem seen in the Scottish sample are open to numerous interpretations: some authors have discussed 'counter-productive' elements associated with high levels of self-reported self-esteem, and with attempts to boost self-esteem²¹⁵⁻²²⁰.

The survey data do not support the hypothesis of ‘anomie’ among Glasgow’s population. However, as stated above, serious questions remain about the extent to which such a survey could accurately identify such a trait, both in terms of the questions available to researchers, and the reach of such surveys. Finally, the data are also limited in relation to materialism.

Conclusions and further work

This survey was one component of a wider programme of research²⁶. To date, the other parts of that research has suggested that differences in ‘early years’ experiences’ is an unlikely explanation for Glasgow’s relatively poorer health status⁴⁴ (a result supported by the limited data collected in this three-city survey). A similar negative result emerged from detailed analyses of the spatial patterning of deprivation in the three cities^{lv,221}. Ongoing research is exploring some of the same hypotheses discussed within this report, but is doing so by means of qualitative research methodologies: results are expected in late 2013. Further projects are exploring aspects of drugs and alcohol misuse in the three cities (mortality from both causes having been shown to be very much higher in Glasgow compared with Liverpool and Manchester), with results from those two projects due in 2014, while two separate PhD studentships are researching (a) historical changes in deprivation and mortality across the cities in relation to the spatial development of the city structures, and (b) the likely impact of local policies and practice: both are likely to produce important findings, as discussed further below.

The results of this three-city survey emphasise the need for further, complementary, research: the potential relevance of religious participation, and a clarification of the likely difference between participation and affiliation; further examination of differences in social capital, and an understanding of reasons for differences between the cities; the use of longitudinal data to further explore the social mobility hypothesis; further research around whether levels of materialism differ within the cities’ populations, and the likely impact and relevance of any such finding; and a greater understanding of the likely importance of the ‘political effects’ hypothesis.

Further speculation...

Elements of the latter hypothesis, combined with results from the two areas of research currently underway by means of PhD studentships, may facilitate greater understanding of reasons for at least a part of Glasgow’s ‘excess’ mortality. As outlined briefly in the introduction,

^{lv} This study examined whether the differential mortality rates in Glasgow, Liverpool and Manchester were likely to be influenced by differences in the spatial distributions of deprivation, that is, the ways in which deprived and affluent areas are distributed across the cities. Higher levels of neighbourhood-level mortality in Glasgow did not appear to be influenced by differences in the patterning of deprivation in surrounding areas in Glasgow compared with the two English cities.

the previous analyses of deprivation and mortality in the three cities showed that for deaths at all ages, the 15% ‘excess’ mortality was seen across all of Glasgow’s neighbourhood types (deprived and non-deprived) – Figure 111 below; however, the much higher 30% ‘excess’ for *premature* mortality (deaths under 65), was more evident in comparisons between more, rather than less, deprived areas (Figure 112). The latter suggests the nature of deprivation in Glasgow’s poorer areas may be different than that of Liverpool and Manchester’s poorest areas: an important avenue of exploration, therefore, is whether particular local (and/or national) policies and developments have shaped the experiences of Glasgow’s most deprived population in different ways to equivalent populations in the other cities. If so, this might suggest that the ‘excess’ mortality may be explained by two separate phenomena – albeit with overlapping elements: first, a complex interaction of different factors that impact on mortality across the whole social spectrum (and within which we can perhaps speculate, on the evidence accumulated here, that issues such as social capital may play a role); and second, additional factors, perhaps influenced by historical experiences, impacting on mortality among Glasgow’s more deprived population in a particular way. An alternative explanation is that a greater manifestation of the same phenomenon affects the more disadvantaged areas of Glasgow.

Figure 111

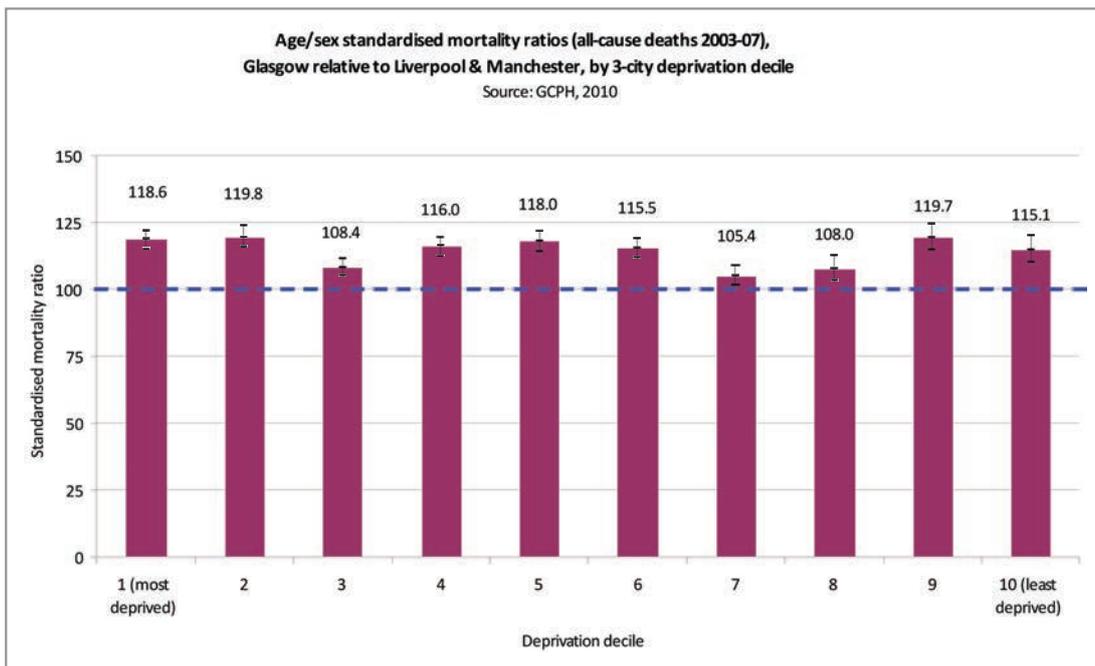
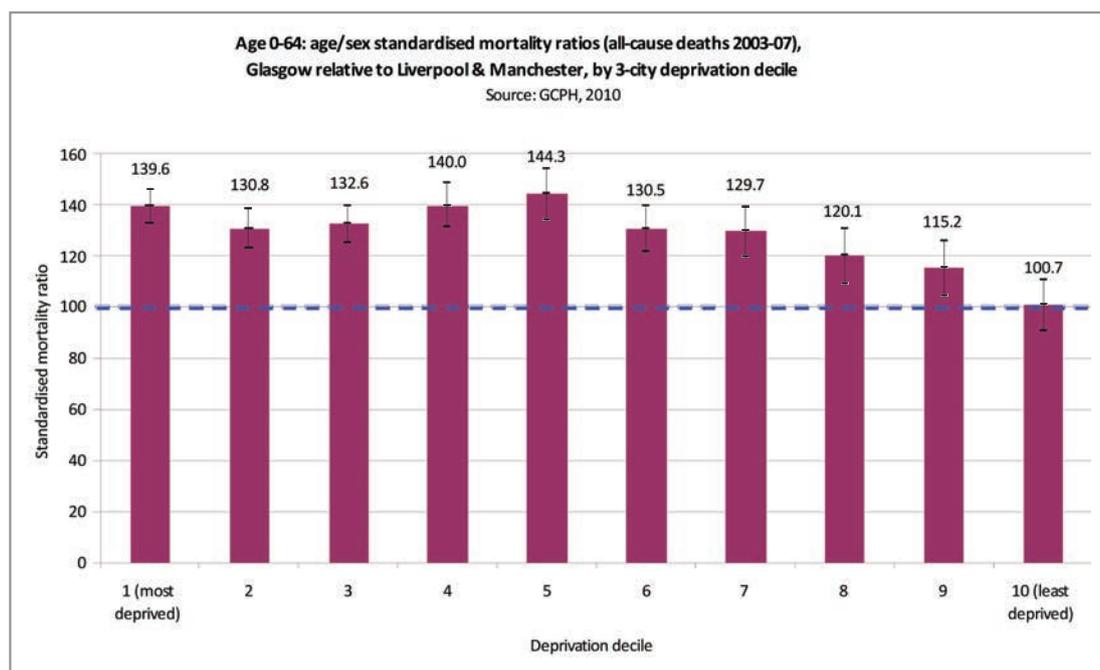


Figure 112



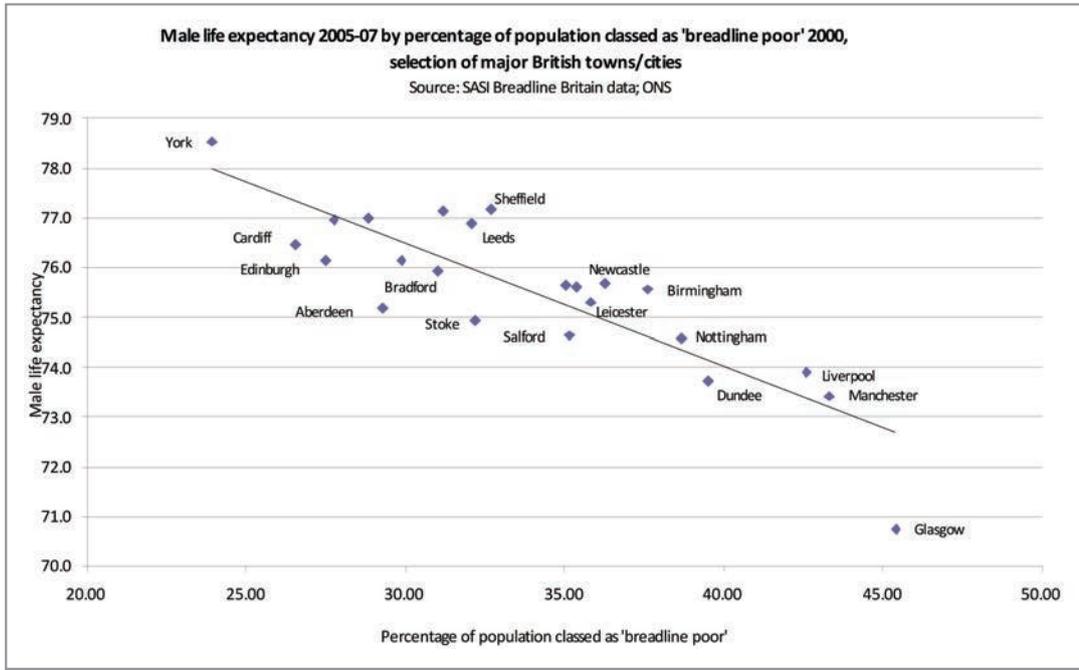
What remains beyond doubt and speculation is the scale of this ‘excess’, the impact it has on individuals and communities alike in terms of shortened and wasted lives, and the urgent need, therefore, to understand, and address this situation. It is important to stress, however, that this must be alongside, not in place of, efforts to reduce poverty and deprivation, the fundamental drivers of poor health in any society: the final chart (Figure 113) emphasises this point by presenting male life expectancy in the mid-2000s²²² for some of the major UK towns and cities alongside the percentage of population of each that was classed as ‘Breadline poor’^{lxvi} in 2000 in a study by Dorling *et al.* at the University of Sheffield^{223,224}. Although a number of caveats apply to combining these data^{lxvii}, they helpfully demonstrate two key points. First, despite very similar levels of (this measure of) poverty – 45% of the population in Glasgow, 43% in both Liverpool and Manchester) – Glasgow has considerably lower life expectancy: it is an ‘outlier’ in this respect, and this is another illustration of the ‘excess’ levels of mortality in the city described above and elsewhere in this report.

^{lxvi} Dorling *et al.*’s analyses of ‘poverty, wealth and place’ referenced above developed a Britain-wide measure of poverty and deprivation based on combining individual data from four national (British) surveys of poverty and social exclusion with area-level data from the Census. This enabled a classification of Britain into four categories: ‘core poor’; ‘breadline poor’; ‘asset wealthy’; and ‘exclusive wealthy’, with area-based estimates derived back to 1968.

^{lxvii} These data combine ONS life expectancy estimates calculated for local authority areas with Dorling *et al.*’s ‘Breadline poor’ data calculated at census ‘tract’ level. A ‘tract’ equates to approximately half a UK parliamentary constituency, with an average population size in 2001 of around 45,000 people. Tracts were aggregated to ‘best-fit’ local authority areas. Thus, the exact boundaries of these areas will not exactly match those at which the ONS data have been calculated. However, differences will be minimal. Note also that, for simplicity, London is not included in the Figure, as that city is obviously made up of a number of different local authority areas.

Second, even if Glasgow had the same life expectancy as those two English cities, it would still be considerably lower than that of any other UK city (e.g. York, Cardiff, Edinburgh): this is because of the fundamental link between poverty and poor health, a link that should not be forgotten in seeking to understand the causes of 'excess' mortality in Scotland and Glasgow.

Figure 113



References

References

- 1 Scottish Executive Office of the Chief Statistician. Scottish Index of Multiple Deprivation 2004. Scottish Executive; 2004. Available at: <http://www.scotland.gov.uk/Publications/2004/10/20089/45173> (accessed April 2013).
- 2 Hanlon P, Walsh D, Whyte B. *Let Glasgow Flourish*. Glasgow: GCPH; 2008.
- 3 Shaw M, Dorling D, Gordon D, Davey Smith G. *The Widening Gap: health inequalities and policy in Britain* (2nd edition). Bristol: The Policy Press; 1999.
- 4 Norman P, Boyle P, Exeter D, Feng Z, Popham F. Rising premature mortality in the UK's persistently deprived areas: only a Scottish phenomenon? *Social Science & Medicine* 2011;73(11):1575-1584.
- 5 Health & Wellbeing Profiles 2010; The Scottish Public Health Observatory (ScotPHO). <http://www.scotpho.org.uk/home/Comparativehealth/Profiles/2010CHPPProfiles.asp> (accessed April 2013).
- 6 Kelso L, Walsh D, Whyte B. *Constituency Health & Well-Being Profiles*. Edinburgh: NHS Health Scotland; 2004.
- 7 Leyland AH, Dundas R, McLoone P, Boddy FA. *Inequalities in mortality in Scotland 1981-2001*. Glasgow: MRC Social and Public Health Sciences Unit; 2007.
- 8 Walsh D, Taulbut M, Hanlon P. The aftershock of deindustrialization – trends in mortality in Scotland and other parts of post-industrial Europe. *European Journal of Public Health* 2010;20(1):58-64.
- 9 Taulbut M, Walsh D, Parcell S, Hanlon P, Hartmann A, Poirier G, Strniskova D. *Health and its determinants in Scotland and other parts of post-industrial Europe: the 'Aftershock of Deindustrialisation' study – phase two*. Glasgow: GCPH; 2011.
- 10 Hanlon P, Lawder RS, Buchanan D, Redpath A, Walsh D, Wood R, Bain M, Brewster DH, Chalmers J. Why is mortality higher in Scotland than in England & Wales? Decreasing influence of socioeconomic deprivation between 1981 and 2001 supports the existence of a 'Scottish Effect'. *Journal of Public Health* 2005;27(2):199-204.
- 11 Popham F, Boyle PJ. Is there a 'Scottish effect' for mortality? Prospective observational study of census linkage studies. *Journal of Public Health* 2011;33(3):453-458.

- 12 Popham F, Boyle PJ, Norman P. The Scottish excess in mortality compared to the English and Welsh. Is it a country of residence or country of birth excess? *Health & Place* 2010;16(4):759-762.
- 13 McCartney G, Russ T, Walsh D, Lewsey J, Smith M, Davey Smith G, Stamatakis E, Batty GD. *Explaining the excess mortality in Scotland compared with England: pooling of 18 cohort studies*. (manuscript in preparation).
- 14 Reid J. *Excess mortality in the Glasgow conurbation: exploring the existence of a 'Glasgow effect'*. Glasgow: University of Glasgow; 2009.
- 15 Landy R, Walsh D, Ramsay J. Do socio-economic, behavioural and biological risk factors explain the poor health profile of the UK's sickest city? *Journal of Public Health* 2012;34(4):591-598.
- 16 Walsh D, Bendel N, Jones R, Hanlon P. It's not 'just deprivation': Why do equally deprived UK cities experience different health outcomes? *Public Health* 2010;124(9):487-495.
- 17 Walsh D, Bendel N, Jones R, Hanlon P. *Investigating a 'Glasgow Effect': Why do equally deprived UK cities experience different health outcomes?* Glasgow: GCPH; 2010.
- 18 Mackie P, Sim F. We need to talk about Kelvingrove. *Public Health* 2010;124(9):485-486.
- 19 George S. It's not just deprivation – or is it? *Public Health* 2010;124(9):496-497.
- 20 Donnelly PD. Explaining the Glasgow effect: could adverse childhood experiences play a role? *Public Health* 2010;124(9):498-499.
- 21 Gordon DS. We need to look to broad horizons to understand (and change) health. *Public Health* 2010;124(12):716-717.
- 22 Wilkinson JR. What we want to know is... *Public Health* 2010;124(12):718-719.
- 23 Hussey R, Hennell T. It's not just deprivation. *Public Health* 2011;125(2):114-115.
- 24 McCartney G, Collins C, Walsh D, Batty GD. *Accounting for Scotland's Excess Mortality: towards a synthesis*. Glasgow: GCPH; 2011.
- 25 McCartney G, Collins C, Walsh D, Batty GD. Why the Scots die younger: synthesizing the evidence. *Public Health* 2012;126(6):459-470.

- 26 Scottish 'excess' mortality: comparing Glasgow with Liverpool and Manchester. Glasgow Centre for Population Health website: http://www.gcph.co.uk/work_themes/theme_1_understanding_glasgows_health/excess_mortality_comparing_glasgow (accessed April 2013).
- 27 Sterne JA, Davey Smith G. Sifting the evidence-what's wrong with significance tests? *BMJ* 2001;322(7280):226-231.
- 28 Antonovsky A. *Health, stress and coping*. San Francisco: Jossey-Bass; 1979.
- 29 Antonovsky A. *Unraveling the mystery of health. How people manage stress and stay well*. San Francisco: Jossey-Bass; 1987.
- 30 Scottish Government. *Health in Scotland 2008 – Annual Report of the Chief Medical Officer*. Edinburgh: Scottish Government; 2009.
- 31 Cairns J, van der Pol M. The estimation of marginal time preference in a UK-wide sample (TEMPUS) project. *Health Technology Assessment* 2000;4(1).
- 32 Cairns J, van der Pol M. Repeated follow-up as a method for reducing non-trading behaviour in discrete choice experiments. *Social Science and Medicine* 2004;58:2211-2218.
- 33 van der Pol M, Cairns J. Negative and zero time preference for health. *Health Economics* 2000;9(2):171-175.
- 34 Robinson A, Dolan P, Williams A. Valuing health status using VAS and TTO: what lies behind the numbers? *Social Science & Medicine* 1997;45(8):1289-1297.
- 35 Craig C. *The tears that made the Clyde – well-being in Glasgow*. Glendaruel: Argyll publishing; 2010.
- 36 Craig C. *The Scots' Crisis of Confidence*. Glasgow: Big Thinking; 2005.
- 37 Durkheim E. *The Division of Labour in Society*. New York, NY, USA: The Free Press; 1984.
- 38 Durkheim E. *Suicide*. New York, NY, USA: The Free Press; 1951.
- 39 Buckingham A. Is there an underclass in Britain? *British Journal of Sociology* 1999;50:49-75.

- 40 Dean M. Christmas, the poor, and the development of a UK underclass. *Lancet* 1989;334:1536-1537.
- 41 Murray C. *The Underclass Revisited*. Washington, DC, USA: AEI Press; 1999.
- 42 Kelso WA. *Poverty and the Underclass: Changing Perceptions of the Poor in America*. New York, NY, USA: New York University Press; 1994.
- 43 Murray C. *The emerging British underclass*. London: Institute of Economic Affairs; 1990.
- 44 Taulbut M, Walsh D. *Poverty, parenting and poor health: comparing early years' experiences in Scotland, England and three city regions*. Glasgow: GCPH; 2013.
- 45 Willis GB. *Cognitive Interviewing: A Tool for Improving Questionnaire Design*. Thousand Oaks, CA, USA: Sage Publications; 2005.
- 46 Antonovsky A. The structure and properties of the sense of coherence scale. *Social Science & Medicine* 1993;36:725-733.
- 47 Green H, Fletcher L. *Social Capital Harmonised Question Set. A guide to questions for use in the measurement of social capital*. Newport: Office of National Statistics (ONS); 2003.
- 48 Schwartz SH. *Basic Human Values*. Cross-National Comparison Seminar on the Quality and Comparability of Measures for Constructs in Comparative Research: Methods and Applications, Bolzano (Bozen), Italy, June 10-13, 2009. Available from: http://www.ccsr.ac.uk/qmss/seminars/2009-06-10/documents/Shalom_Schwartz_1.pdf (accessed April 2013).
- 49 Schwartz SH. Les valeurs de base de la personne: Théorie, mesures et applications [Basic human values: Theory, measurement, and applications]. *Revue Française de Sociologie* 2006;42:249-288.
- 50 Bilsky W, Janik M, Schwartz SH. The structural organization of human values – evidence from three rounds of the European Social Survey (ESS). *Journal of Cross-Cultural Psychology* 2011;42:759.
- 51 Schwartz SH. Universals in the content and structure of values: theory and empirical tests in 20 countries. In: Zanna M (ed.) *Advances in experimental social psychology*. Volume 25. New York, NY, USA: Academic Press; 1992. p1-65.

- 52 Schwartz SH. A Proposal for Measuring Value Orientations across Nations. Chapter 7 in the Questionnaire Development Package of the European Social Survey; 2003. Available at: www.Europeansocialsurvey.org
- 53 Schwartz SH. Basic human values: Their content and structure across countries. In Tamayo A, Porto JB (eds.) *Valores e comportamento nas organizações [Values and behaviour in organisations]* Petrópolis, Brazil: Vozes; 2005. pp21-55.
- 54 Scheier MF, Carver CS, Bridges MW. Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A re-evaluation of the Life Orientation Test. *Journal of Personality and Social Psychology* 1994;67:1063-1078.
- 55 Schwarzer R, Jerusalem M. Generalized Self-Efficacy scale. In: Weinman J, Wright S, Johnston M (eds.) *Measures in health psychology: A user's portfolio. Causal and control beliefs*. Windsor, UK: NFER-NELSON; 1995. p35-37.
- 56 Schwarzer R (ed.) *Self-efficacy: Thought control of action*. Washington, DC, USA: Hemisphere; 1992.
- 57 ESRC. Understanding Society website: <https://www.understandingsociety.ac.uk> (accessed April 2013).
- 58 Rosenberg M. *Society and the adolescent self-image*. Princeton, NJ, USA: Princeton University Press; 1965.
- 59 AECOM Social and Market Research: <http://www.aecom.com> (accessed April 2013).
- 60 AECOM Social and Market Research. *Investigating the 'Glasgow Effect' – Three Cities Population Survey: Technical Survey Report*; February 2012.
- 61 Bryman A. *Social Research Methods* (3rd edition). Oxford: Oxford University Press; 2008.
- 62 Royal Mail Postcode Address File: <http://www.royalmail.com/marketing-services/address-management-unit/address-data-products/postcode-address-file-paf> (accessed April 2013).
- 63 Rutherford L, Sharp C, Bromley C (eds). *The Scottish Health Survey 2011. Volume 3: Technical Report*. Edinburgh: Scottish Government; 2012.

- 64 Park A, Clery E, Curtice J, Phillips M, Utting D (eds.). *British Social Attitudes: the 29th Report*, London: NatCen Social Research; 2012. Available from: www.bsa-29.natcen.ac.uk (accessed April 2013).
- 65 Office for National Statistics (ONS). *Labour Force Survey: Performance and Quality Monitoring Report, October to December 2012*. Available from: <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/labour-market/labour-force-survey/pqm-report-october---december-2012.pdf> (accessed February 2013).
- 66 Gray L, McCartney G, White IR, Katikireddi SV, Rutherford L, Gorman E, Leyland AH. Use of record-linkage to handle non-response and improve alcohol consumption estimates in health survey data: a study protocol. *BMJ Open* 2013;3(3):e002647.
- 67 Office for National Statistics. *Annual Population Survey*. Available from: www.nomisweb.co.uk (accessed April 2013).
- 68 McLoone P. Targeting deprived areas within small areas in Scotland: population study *BMJ* 2001;323:374-375.
- 69 Eriksson M, Lindström B. Validity of Antonovsky's sense of coherence scale: a systematic review. *Journal of Epidemiology and Community Health* 2005;59(6):460-466.
- 70 Eriksson M, Lindström B. Antonovsky's sense of coherence scale and its relation with quality of life: a systematic review. *Journal of Epidemiology and Community Health* 2007;61:938-944.
- 71 Van Leeuwen CMC, Kraaijeveld S, Lindeman E, Post MWM. Associations between psychological factors and quality of life ratings in persons with spinal cord injury: a systematic review. *Spinal Cord* 2012;50(3):174-187.
- 72 Eriksson M, Lindström B. Antonovsky's sense of coherence scale and the relation with health: a systematic review. *Journal of Epidemiology and Community Health* 2006;60:376-381.
- 73 Flensburg-Madsen T, Ventegodt S, Merrick J. Sense of Coherence and Physical Health. A Review of Previous Findings. *The Scientific World Journal* 2005;5:665-673.
- 74 Coward D. Self-transcendence and correlates in a healthy population. *Nursing Research* 1996;45(2):116-121.

- 75 Edwards D, Besseling E. Relationship between depression, anxiety, sense of coherence, social support and religious involvement in a small rural community affected by industrial relations conflict. *South African Journal of Psychology* 2001;31(4):62-72.
- 76 Gibson LM. Inter-relationships among sense of coherence, hope, and spiritual perspective (inner resources) of African-American and European-American breast cancer survivors. *Applied Nursing Research* 2003;16(4):236-44.
- 77 Matsuura E, Ohta A, Kanegae F, Haruda Y, Ushiyama O, Koarada S, Togashi R, Tada Y, Suzuki N, Nagasawa K. Frequency and analysis of factors closely associated with the development of depressive symptoms in patients with scleroderma. *Journal of Rheumatology* 2003;30(8):1782-1787.
- 78 Eriksson NG, Lundin T. Early traumatic stress reactions among Swedish survivors of the m/s Estonia disaster. *British Journal of Psychiatry* 1996;169:713-716.
- 79 Kouvonen AM, Vaananen A, Vahtera J, Heponiemi T, Koskinen A, Cox SJ, Kivimaki M. Sense of coherence and psychiatric morbidity: a 19-year register-based prospective study. *Journal of Epidemiology and Community Health* 2010;64(3):255-261.
- 80 Sjostrom N, Hetta J, Waern M. Sense of coherence and suicidality in suicide attempters: a prospective study. *Journal of Psychiatric and Mental Health Nursing* 2012;19(1):62-69.
- 81 Ristkari T, Sourander A, Ronning JA, Elonheimo H, Helenius H. Sense of coherence and criminal offences among young males. Findings from the Finnish 1981 Nationwide Birth Cohort Follow-Up Study. European Child and Adolescent Psychiatry Conference: 14th International Congress of ESCAP European Society for Child and Adolescent Psychiatry: Helsinki Finland; 2011.
- 82 Glanz K, Maskarinec G, Carlin L. Ethnicity, sense of coherence, and tobacco use among adolescents. *Annals of Behavioral Medicine* 2005;29(3):192-199.
- 83 Nilsson KW, Starrin B, Simonsson B, Leppert J. Alcohol-related problems among adolescents and the role of a sense of coherence. *International Journal of Social Welfare* 2007;16(2):159-167.
- 84 Arevalo S, Prado G, Amaro H. Spirituality, sense of coherence, and coping responses in women receiving treatment for alcohol and drug addiction. *Evaluation and Program Planning* 2008;31:113-123.

- 85 Lundberg O, Peck MN. Sense of coherence, social structure and health. Evidence from a population survey in Sweden. *European Journal of Public Health* 1994;4:252-257.
- 86 Agardh EE, Ahlbom A, Andersson T, Efendic S, Grill V, Hallqvist J, Norman A, Stenson CG. Work Stress and Low Sense of Coherence Is associated with type 2 Diabetes in Middle-aged Swedish Women. *Diabetes Care* 2002;26:719-724.
- 87 Ristner G, Andersson R, Johansson LM, Johansson SE, Ponzer S. Sense of coherence and lack of control in relation to outcome after orthopaedic injuries. *Injury* 2000;31(10):751-756.
- 88 Ray EC, Nickels MW, Sayeed S, Sax HC. Predicting success after gastric bypass: the role of psychosocial and behavioral factors. *Surgery* 2003;134(4):555-564.
- 89 Wainwright NWJ, Surtees PG, Welch AA, Luben RN, Khaw KT, Bingham SA. Sense of coherence, lifestyle choices and mortality. *Journal of Epidemiology and Community Health* 2008;62(9):829-831.
- 90 Berg JE, Brevik JI. Complaints that predict drop-out from a detoxification and counselling unit. *Addictive Behaviors* 1998;23(1):35-40.
- 91 Eklund M, Hansson L, Bejerholm U. Relationships between satisfaction with occupational factors and health-related variables in schizophrenia outpatients. *Social Psychiatry and Psychiatric Epidemiology* 2001;36(2):79-83.
- 92 Gottlieb A. Single mothers of children with disabilities. The role of sense of coherence in managing multiple challenges. In: McCubbin HI, Thompson EA, Thompson AI, Fromer JE (eds). *Stress, Coping, and Health in Families: Sense of Coherence and Resiliency*. Thousand Oaks, CA, USA: SAGE Publications; 1998. p189-204.
- 93 Wolff AC, Ratner PA. Stress, social support, and sense of coherence. *Western Journal of Nursing Research* 1999;21(2):182-197.
- 94 Nilsson B, Holmgren L, Stegmayr B, Westman G. Sense of coherence--stability over time and relation to health, disease, and psychosocial changes in a general population: a longitudinal study. *Scandinavian Journal of Public Health* 2003;31(4):297-304.
- 95 Packard CJ, Cavanagh J, McLean JS, McConnachie A, Messow CM, Batty GD, Burns H, Deans KA, Sattar N, Shiels PG, Velupillai YN, Tannahill C, Millar K. Interaction of personality traits with social deprivation in determining mental wellbeing and health behaviours. *Journal of Public Health* 2012;34(4):615-624.

- 96 Islam MK, Merlo J, Kawachi I, Lindström M, Gerdtham UG. Social capital and health: Does egalitarianism matter? A literature review. *International Journal for Equity in Health* 2006;5:3.
- 97 Portes A. Social capital: its origins and applications in modern sociology. *Annual Review of Sociology* 1998;24:1-24.
- 98 Coleman JS. *Foundations of Social Theory*. Cambridge, MA, USA: Harvard University Press; 1990.
- 99 Cote S, Healy T. *The Well-being of Nations. The role of human and social capital*. Paris: Organisation for Economic Co-operation and Development; 2001.
- 100 Putnam RD. *Bowling alone: the collapse and revival of American community*. New York, NY, USA: Simon and Schuster; 2000.
- 101 Putnam RD. Bowling alone: America's declining social capital. *Journal of Democracy* 1995;6(1):65-78.
- 102 Lochner K, Kawachi I, Kennedy BP. Social capital: a guide to its measurement. *Health & Place* 1999;5(4):259-270.
- 103 Krishna A, Uphoff N. *Mapping and Measuring Social Capital: A Conceptual and Empirical Study of Collective Action for Conserving and Developing Watersheds in Rajasthan, India*. Social Capital Initiative Working Paper No. 13. Washington, DC, USA: World Bank; 1999.
- 104 McKenzie K, Whitley R, Weich S. Social Capital and mental health. *British Journal of Psychiatry* 2002;181:280-283.
- 105 Harpham T, Grant E, Thomas E. Measuring social capital within health surveys: key issues. *Health Policy and Planning* 2002;17(1):106-111.
- 106 De Silva MJ, McKenzie K, Harpham T, Huttly SRA. Social capital and mental illness: a systematic review. *Journal of Epidemiology and Community Health* 2005;59(8):619-627.
- 107 Szreter S, Woolcock M. Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology* 2004;33(4):650-667.

- 108 Glaeser EL, Laibson D, Sacerdote B. An Economic Approach to Social Capital. *The Economic Journal* 2002;112(November):F437-F458.
- 109 Durlauf S, Fafchamps M. Social Capital. National Bureau of Economic Research (NBER) Working Paper 10485 National Bureau of Economic Research, 2004. Available at: <http://www.nber.org/papers/w10485> (accessed April 2013).
- 110 Baum F. Social capital: is it good for your health? Issues for a public health agenda. *Journal of Epidemiology and Community Health* 1999;53(4):195-196.
- 111 Durlauf S. Bowling Alone: A Review Essay. *Journal of Economic Behavior and Organization* 2000;47(3):259-273.
- 112 Manaski CF. Economic analysis of social interactions. *Journal of Economic Perspectives* 2000;14(3):115-136.
- 113 Kawachi I, Kim D, Coutts A, Subramanian SV. Reconciling the three accounts of social capital. *International Journal of Epidemiology* 2004;33(4):682-690.
- 114 Macinko J, Starfield B. The utility of social capital in research on health determinants. *The Milbank Quarterly* 2001;79(3):387-427.
- 115 Lundborg P. Having the wrong friends? Peer effects in adolescent binge drinking, smoking and illicit-drug use. In: *Risky Health Behavior Among Adolescent*. Lund, Sweden: Lund Economic Studies 10, Department of Economics, Lund University; 2003.
- 116 Kawachi I. Social Capital and Community Effects on Population and Individual Health. *Annals of the New York Academy of Sciences* 1999;896(1):120-130.
- 117 Kawachi I, Kennedy B, Lochner K, Prothrow-Stith D. Social Capital, Income Inequality, and Mortality. *American Journal of Public Health* 1997;87(9):1491-1498.
- 118 Wilkinson RG, Kawachi I, Kennedy BP. Mortality, the social environment, crime and violence. *Sociology of Health and Illness* 1998;20(5):578-597.
- 119 Lochner K, Kawachi I, Brennan RT, Buka SL. Social capital and neighborhood mortality rates in Chicago. *Social Science and Medicine* 2003;56(8):1797-1805.
- 120 Stuckler D, King L, McKee M. Mass privatisation and the post-communist mortality crisis: a cross-national analysis. *Lancet* 2009;373(9661):399-407.
- 121 Kennedy B, Kawachi I, Brainerd E. The role of social capital in the Russian mortality crisis. *World Development* 1998;26(11):2029-2043.

- 122 Skrabski A, Kopp M, Kawachi I. Social capital in a changing society: cross sectional associations with middle aged female and male mortality rates. *Journal of Epidemiology and Community Health* 2003;57(2):114-119.
- 123 Skrabski A, Kopp M, Kawachi I. Social capital and collective efficacy in Hungary: cross sectional associations with middle aged female and male mortality rates. *Journal of Epidemiology and Community Health* 2004;58(4):340-345.
- 124 Hyppä MT, Mäki J. Why do Swedish-speaking Finns have longer active life? An area of social capital research. *Health Promotion International* 2001;16(1):55-64.
- 125 Siahpush M, Singh GK. Social integration and mortality in Australia. *Australian and New Zealand Journal of Public Health* 1999;23(6):571-577.
- 126 Kripper CE, Sapag JC. [Social capital and health in Latin America and the Caribbean: a systematic review]. *Pan American Journal of Public Health* 2009;25(2):162-170.
- 127 Murayama H, Fujiwara Y, Kawachi I. Social capital and health: a review of prospective multilevel studies. *Journal of Epidemiology* 2012;22(3):179-187.
- 128 Maselko J, Hughes C, Cheney R. Religious social capital: Its measurement and utility in the study of the social determinants of health. *Social Science and Medicine* 2011;73(5):759-767.
- 129 McCullough ME, Hoyt WT, Larson DB, Koenig HG, Thorenson CE. Religious involvement and mortality: a meta-analytic review. *Health Psychology* 2000;19(3):211-222.
- 130 Coruh B, Ayele H, Pugh M, Mulligan T. Does Religious Activity Improve Health Outcomes? A Critical Review of the Recent Literature. *Journal of Science and Healing* 2005;1(3):186-191.
- 131 Hummer RA, Ellison CG, Rogers RG, Moulton BE, Romero RR. Religious involvement and adult mortality in the United States: Review and perspective. *Southern Medical Journal* 2004;97(12):1223-1230.
- 132 Gearing RE, Lizardi D. Religion and suicide. *Journal of Religion and Health* 2009;48(3):332-341.
- 133 Nicolet S, Tresch A. Changing religiosity, changing politics? The influence of 'belonging' and 'believing' on political attitudes in Switzerland. *Politics and Religion* 2009;2(1):76-99.

- 134 Pollack D, Pickel G. Religious individualism or secularism? Testing hypotheses of religious change – the case of Eastern and Western Germany. *British Journal of Sociology* 2007;58(4):603-632.
- 135 Davie G. *Religion in Britain since 1945: Believing without belonging*. Oxford, UK: Blackwell; 1994.
- 136 Davie G. *Religion in Modern Europe*. Oxford, UK: Oxford University Press; 2000.
- 137 European Social Survey. Computing Scores for the 10 Human values. Available from: http://ess.nsd.uib.no/ess/doc/ess1_human_values_scale.pdf (accessed April 2013).
- 138 Schwartz SH. The Hebrew University of Jerusalem. Personal communication; 2013.
- 139 Davidov E, Schmidt P, Schwartz SH. Bringing values back in: the adequacy of the European Social Survey to measure values in 20 countries. *Public Opinion Quarterly* 2008;72(3):420-445.
- 140 Scottish Government. Scottish Household Survey: <http://www.scotland.gov.uk/Topics/Statistics/16002> (accessed April 2013).
- 141 Mindell J, Biddulph J, Hirani V, Stamatakis E, Craig R, Nunn S, Shelton N. Cohort profile: the health survey for England. *International Journal of Epidemiology* 2012;41(6):1585-1593.
- 142 NHS Greater Glasgow/NHS Greater Glasgow & Clyde Health & Wellbeing Survey: <http://www.phru.net/rande/Web%20Pages/Health%20and%20Wellbeing.aspx> (accessed April 2013).
- 143 Jones R, Borland E, Boyd A, Lorenzetti K, Scouller J, Carey L, Tannahill C. *The Health and Well-Being of the Greater Glasgow Population; summary report*. Glasgow: NHS Greater Glasgow and Clyde: 2003.
- 144 Scottish Government. *Scotland's People. Annual report: results from 2007/2008 Scottish Household Survey*. Edinburgh: The Scottish Government; 2009. Available from: <http://www.scotland.gov.uk/Resource/Doc/283301/0085783.pdf> (accessed April 2013).
- 145 Ormston R, Reid S. *Exploring dimensions of social capital in Scotland: findings from the Scottish Social Attitudes Survey and Scottish Household Survey*. Research Findings No. 20. Edinburgh: Scottish Government Social Research; 2012. Available from: <http://www.scotland.gov.uk/Resource/0040/00404899.pdf> (accessed April 2013).

- 146 Ormston R. *Scottish Social Attitudes Survey 2009: Core Module - Attitudes to Government, the Economy and Public Services in Scotland*. Edinburgh: Scottish Government Social Research; 2010. Available from: <http://www.scotland.gov.uk/Resource/Doc/305570/0095845.pdf> (accessed February 2013).
- 147 Pecorelli N, Grayston R, Martin D. *Volunteering and the civic society in Liverpool*. London: The Campaign Company; 2012.
- 148 Bartley M. Unemployment and ill health: understanding the relationship. *Journal of Epidemiology and Community Health* 1994;48(4):333-337.
- 149 Dorling D. Unemployment and health. *BMJ* 2009;338:b829.
- 150 Waddell G, Burton AK. *Is Work Good for Your Health and Well-being?* London: Stationery Office; 2006.
- 151 Lundberg O, Yngwe MA, Stjärne MK, Elstad JI, Ferrarini T, Kangas O, Norström T, Palme J, Fritzell J; NEWS Nordic Expert Group. The role of welfare state principles and generosity in social policy programmes for public health: An international comparative study. *Lancet* 2008;372(9650):1633-1640.
- 152 Lynch JW, Davey Smith G, Kaplan GA, House JS. Income inequality and mortality: Importance to health of individual income, psychosocial environment, or material conditions. *BMJ* 2000;320(7243):1200-1204.
- 153 Marmot M, Friel S, Bell R, Houweling TA, Taylor S; Commission on Social Determinants of Health. Closing the gap in a generation: Health equity through action on the social determinants of health. *Lancet* 2008;372(9650):1661-1669.
- 154 Wilkinson R, Pickett K. *The Spirit Level: Why More Equal Societies Almost Always Do Better*. London: Penguin; 2009.
- 155 Krieger N. *Epidemiology and the People's Health. Theory and context*. Oxford: Oxford University Press; 2011.
- 156 Egan M, Tannahill C, Pettigrew M, Thomas S. Psychosocial risk factors in home and community settings and their associations with population health and health inequalities: a systematic meta-review *BMC Public Health* 2008;8:239.
- 157 Marmot M, Wilkinson RG. Psychosocial and material pathways in the relation between income and health: A response to Lynch et al. *BMJ* 2001;322(7296):1233-1236.

- 158 Collins C, McCartney G. The impact of neoliberal “political attack” on health: the case of the “Scottish effect”. *International Journal of Health Services* 2011;41(3):501-523.
- 159 Boyle M, McWilliams C, Rice G. The spatialities of actually existing neoliberalism in Glasgow, 1977 to present. *Geografiska Annaler: Series B, Human Geography* 2008;90:313-25.
- 160 Ormston R. *Scottish Social Attitudes Survey 2009. Core module: attitudes to government, the economy and public services in Scotland*. Edinburgh: Scottish Government Social Research 2010. Available from: <http://www.scotland.gov.uk/Resource/Doc/305570/0095845.pdf> (accessed April 2013).
- 161 Ormston R, Reid S. *Scottish social attitudes survey 2011. Core module: Attitudes to government, the economy and public services in Scotland*. Edinburgh: Scottish Government Social Research; 2012.
- 162 Lyons A, Chamberlain K. The effects of minor events, optimism and self-esteem on health. *British Journal of Health Psychology* 1994;33(Pt 4):559-570.
- 163 Fournier MA, de Ridder D, Bensing J. How optimism contributes to the adaptation of chronic illness. A prospective study into the enduring effects of optimism on adaptation moderated by the controllability of chronic illness. *Personality and Individual Differences* 2002;33(7):1163-1183.
- 164 de Ridder D, Fournier MA, Bensing J. Does optimism affect symptom report in chronic disease? What are its consequences for self-care behaviour and physical functioning? *Journal of Psychosomatic Research* 2004;56(3):341-350.
- 165 Mahler HIM, Kulik JA. Optimism, pessimism and recovery from coronary bypass surgery: Prediction of affect, pain and functional status. *Psychology, Health & Medicine* 2000;5(4):347-358.
- 166 Pressman SD, Cohen S. Does positive affect influence health? *Psychological Bulletin* 2005;131(6):925-971.
- 167 Diener E, Chan MY. Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health and Well-Being* 2011;3(1):1-43.
- 168 Boehm JK, Kubzansky LD. The heart’s content: The association between positive psychological well-being and cardiovascular health. *Psychological Bulletin* 2012;138(4):655-691.

- 169 Rasmussen HN, Scheier MF, Greenhouse JB. Optimism and physical health: a meta-analytic review. *Annals of Behavioral Medicine* 2009;37(3):239-256.
- 170 AHP Research/NHS Health Scotland. *Review of scales of positive mental health validated for use with adults in the UK: Technical report*. Edinburgh: NHS Health Scotland; 2007. Available from: <http://www.healthscotland.com/documents/2655.aspx> (accessed April 2013).
- 171 Glaesmer H, Rief W, Martin A, Mewes R, Brahler E, Zenger M, Hinz A. Psychometric properties and population-based norms of the Life Orientation Test Revised (LOT-R). *British Journal of Health Psychology* 2012;17(2):432-445.
- 172 Lai JCL, Cheung H, Lee W, Yu H. The Utility of the Revised Life Orientation Test to Measure Optimism among Hong Kong Chinese. *International Journal of Psychology* 1998;33(1):45-56.
- 173 Makikangas A, Kinnunen U. Psychosocial work stressors and well-being: self-esteem and optimism as moderators in a one-year longitudinal sample. *Personality and Individual Differences* 2003;35(3):537-557.
- 174 Marshall GN, Wortman CB, Kusulas JW, Hervig LK, Vickers RR. Distinguishing optimism from pessimism: Relations to fundamental dimensions of mood and personality. *Journal of Personality and Social Psychology* 1992;62:1067-1074.
- 175 Herzberg PY, Glaesmer H, Hoyer J. Separating optimism and pessimism: A robust psychometric analysis of the revised Life Orientation Test (LOT-R). *Psychological Assessment* 2006;18(4):433-438.
- 176 Glaesmer H, Rief W, Martin A, Mewes R, Brahler E, Zenger M, Hinz A. Psychometric properties and population-based norms of the Life Orientation Test Revised (LOT-R). *British Journal of Health Psychology* 2012;17(2):432-445.
- 177 Blanchflower DG, Oswald AJ. Is well-being U-shaped over the life cycle? *Social Science & Medicine* 2008;66(8):1733-1749.
- 178 Conner P, Norman P (eds.) *Predicting health behaviour* (2nd edition). Buckingham, England: Open University Press; 2005.
- 179 Marks R, Allegrante JP, Lorig K. A Review and Synthesis of Research Evidence for Self-Efficacy-Enhancing Interventions for Reducing Chronic Disability: Implications for Health Education Practice (Part II). *Health Promotion Practice* 2005;6(2):148-156.

- 180 Jones F, Riazi A. Self-efficacy and self-management after stroke: a systematic review. *Disability and Rehabilitation* 2011;33(10):797-810.
- 181 Korpershoek C, van der Bijl J, Hafsteinsdottir TB. Self-efficacy and its influence on recovery of patients with stroke: a systematic review. *Journal of Advanced Nursing* 2011;67(9):1876-1894.
- 182 Frederick S, Loewenstein G, O'Donoghue T. Time Discounting and Time Preference: A Critical Review. *Journal of Economic Literature* 2002;40:351-401.
- 183 Eckersley R. Is modern Western culture a health hazard? *International Journal of Epidemiology* 2006;35(2):252-258.
- 184 Kasser T. *The High Price of Materialism*. Cambridge, MA, USA: MIT Press; 2002.
- 185 Eckersley R. *Well and Good: Morality, Meaning and Happiness* (2nd edition). Melbourne, Australia: Text Publishing; 2005.
- 186 ESS Round 5: *European Social Survey Round 5 Data*. Data file edition 3.0. Norwegian Social Science Data Services, Norway – Data Archive and distributor of ESS data; 2010.
- 187 Schwarzer R. General Self-Efficacy Scale (GSE) – data from other studies. Available at: <http://userpage.fu-berlin.de/health/selfscal.htm> (accessed April 2013).
- 188 van der Pol M, Cairns J. Comparison of two methods of eliciting time preference for future health states. *Social Science and Medicine* 2008;67(5):883-889.
- 189 Schwarzer R, Urte Scholz U. *Cross-cultural assessment of coping resources: the general perceived self-efficacy scale*. Paper presented at the Asian Congress of Health Psychology 2000: Health Psychology and Culture, Tokyo, Japan, August 28-29, 2000.
- 190 McKee M, Leon DA. Social transition and substance abuse. *Addiction* 2005;100(9):1205-1209.
- 191 Crawford F, Beck S, Hanlon P. *Will Glasgow Flourish? Learning from the past, analysing the present and planning for the future*. Glasgow: GCPH; 2007.
- 192 EURO-URHIS 2: European Urban Health Indicators System Part 2. *Health profile: Glasgow (Adult survey)*. EURO URHIS 2012. Available from: http://results.urhis.eu/profiles/HealthProfile_Glasgow%2025082012.pdf (accessed April 2013).

- 193 Kirkcaldy A, Robinson J, Barr W. *The Liverpool And Sefton Lifestyle Survey*. Report No. 94/03. Health and Community Care Research Unit, 2003. Available from: http://www.liv.ac.uk/haccru/backup/reports/Liverpool_and_South_Sefton_Lifestyle_Survey.pdf (accessed April 2013).
- 194 NHS Forth Valley. *Adult Health and Lifestyle Survey 2004*. NHS Forth Valley. Available from: http://www.nhsforthvalley.com/_documents/health-services/audiology/services/public-helath/adult_health_and_lifestyle_survey_05.pdf (accessed April 2013).
- 195 Barr W, Kirkcaldy A. *Greater Merseyside Lifestyle Survey*. Report No. 96/04. Health and Community Care Research Unit; 2004. Available from: http://www.heartofmersey.org.uk/cms_useruploads/files/hm_lljs_greater_merseyside_lifestyle_s.pdf (accessed April 2013).
- 196 NHS Sefton Lifestyle Survey 2010. Available from: http://www.seftonpct.nhs.uk/your-health/public-health-information/Lifestyle_survey_results.asp (accessed April 2013).
- 197 Hossack P, Jarvis E. *Living Costs and Food Survey. Technical Report for survey year: January – December 2010*. Newport: Office for National Statistics; 2012.
- 198 Srole L. Social integration and certain corollaries: an exploratory study. *American Sociological Review* 1956;21(6):709-716.
- 199 Dwight G, Dean DG. Alienation: Its Meaning and Measurement. *American Sociological Review* 1961;26(5):753-758.
- 200 Nettler G. A Measure of Alienation. *American Sociological Review* 1957;22:670-677.
- 201 Middleton R. Alienation, race, and education. *American Sociological Review* 1963;28:973-977.
- 202 Streuning EL, Richardson AH. A factor analytic exploration of the alienation, anomia and authoritarianism domain. *American Sociological Review* 1965;30:768-776.
- 203 Verba S, Schlozman KL, Brady HE. *Voice and Equality. Civic Voluntarism in American Politics*. Cambridge, MA, USA: Harvard University Press; 1995.
- 204 Kawachi I, Kennedy BP, Wilkinson RG. *Income Inequality and Health: A Reader*. New York, NY, USA: The New Press; 1999.
- 205 Kawachi I, Kennedy BP. Health and social cohesion: why care about income inequality? *British Medical Journal* 1997;314(7086):1037-1040.

- 206 Hill KQ, Leighley JE. The policy consequences of class bias in state electorates. *American Journal of Political Science* 1992;36:351-363.
- 207 Kawachi I, Berkman LF. Social cohesion, social capital, and health. In: Berkman LF, Kawachi I (eds.) *Social epidemiology*. Oxford: Oxford University Press; 2000. p174-190.
- 208 Koenig HG, McCullough ME, Larson DB. *Handbook of Religion and Health*. Oxford: Oxford University Press; 2001.
- 209 Ellison CG, Levin JS. The religion-health connection: Evidence, theory, and future directions. *Health Education & Behavior* 1998;25(6):700-720.
- 210 Pargament KL. *The psychology of religion and coping. Theory, research, practice*. New York, NY, USA: The Guilford Press; 1997.
- 211 Jonker L, Greeff AP. Resilience factors in families living with people with mental illnesses. *Journal of Community Psychology* 2009;37(7):859-873.
- 212 Gall TL, Charbonneau C, Clarke NH, Grant K, Joseph A, Shouldice L Understanding the nature and role of spirituality in relation to coping and health: a conceptual framework. *Canadian Psychology-Psychologie Canadienne* 2005;46(2):88-104.
- 213 Borgonovi F. Doing well by doing good. The relationship between formal volunteering and self-reported health and happiness. *Social Science & Medicine* 2008;66(11):2321-2334.
- 214 Kelly M. National Institute for Health and Clinical Excellence. Personal Communication; 2013.
- 215 Baumeister RF, Smart L, Boden JM. Relation of threatened egotism to violence and aggression: the dark side of high self-esteem. *Psychological Review* 1996;103(1):5-33.
- 216 Bushman BJ, Baumeister RF. Threatened egotism, narcissism, self-esteem, and direct and displaced aggression: does self-love or self-hate lead to violence? *Journal of Personality and Social Psychology* 1998;75:219-229. Available at: <http://www-personal.umich.edu/~bbushman/bb98.pdf> (accessed April 2013).
- 217 Baumeister RF, Campbell JD, Krueger JI, Vohs KD. Does high self-esteem cause better performance interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest* 2003;4:1-44.

- 218 Baumeister RF, Campbell JD, Krueger JI, Vohs KD. Exploding the self-esteem myth. *Scientific American* 2005;292(1):84-91.
- 219 Twenge JM. *Generation Me: Why Today's Young Americans Are More Confident, Assertive, Entitled--and More Miserable Than Ever Before*. New York, NY, USA: Free Press; 2006.
- 220 Craig C. A short history of self-esteem. Centre for Confidence & Wellbeing. <http://www.centreforconfidence.co.uk/pp/overview.php?p=c2lkPTYmdGikPTAmaWQ9MTY0> (accessed April 2013).
- 221 Livingston M, Walsh D, Whyte B, Bailey N. *Investigating the impact of the spatial distribution of deprivation on health outcomes*. Glasgow: GCPH; 2013.
- 222 Office for National Statistics (ONS). *Life expectancy at birth and at age 65, United Kingdom and constituent countries, 1991-1993 to 2008-2010*. Newport: Office for National Statistics; 2011.
- 223 Dorling D, Rigby J, Wheeler B, Ballas D, Thomas B, Fahmy E, Gordon D, Lupton R. *Poverty and wealth across Britain 1968 to 2005*. York: Joseph Rowntree Foundation, The Policy Press; 2007.
- 224 Dorling D, Rigby J, Wheeler B, Ballas D, Thomas B, Fahmy E, Gordon D, Lupton R. *Poverty, wealth and place in Britain, 1968 to 2005 – Understanding the Transformation of the Prospects of Places*. University of Sheffield SASI Research Group. Available from: <http://sasi.group.shef.ac.uk/research/transformation/index.html> (accessed April 2013).

Appendices

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These appendices have been published separately and are available on the GCPH website.

