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National Survey for Wales, 2012-13
Satisfaction with health services

National Survey for Wales, 2012-13: Satisfaction with health services

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NatCen Social Research

Views expressed in this report are those of the researchers and not necessarily those of the Welsh Government

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Table of contents

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Executive summary

Introduction

The Welsh Government has made a commitment to include the views of health care users when measuring the performance of the NHS in Wales. One way in which these views are captured is through the National Survey for Wales which asks people about their satisfaction with health services they have used.

The main aim of this report is to explore which factors best explain how satisfied people were with health services. The findings are of relevance to the Welsh Government's Tackling Poverty Action Plan and to health services in Wales.

Method

This report uses analysis of data from the 2012-13 National Survey for Wales. The survey asks people how satisfied they are with their health services, as well as demographic, health and attitudinal information.

This report goes further than descriptive analysis to explore in detail how different factors can help to explain people's views. In each part of the analysis, we controlled for different variables such as respondents' characteristics, experiences and opinions, and attributes of their local area. This is a powerful technique which allows us to look at the separate effect of each variable on views of health services.

Key findings

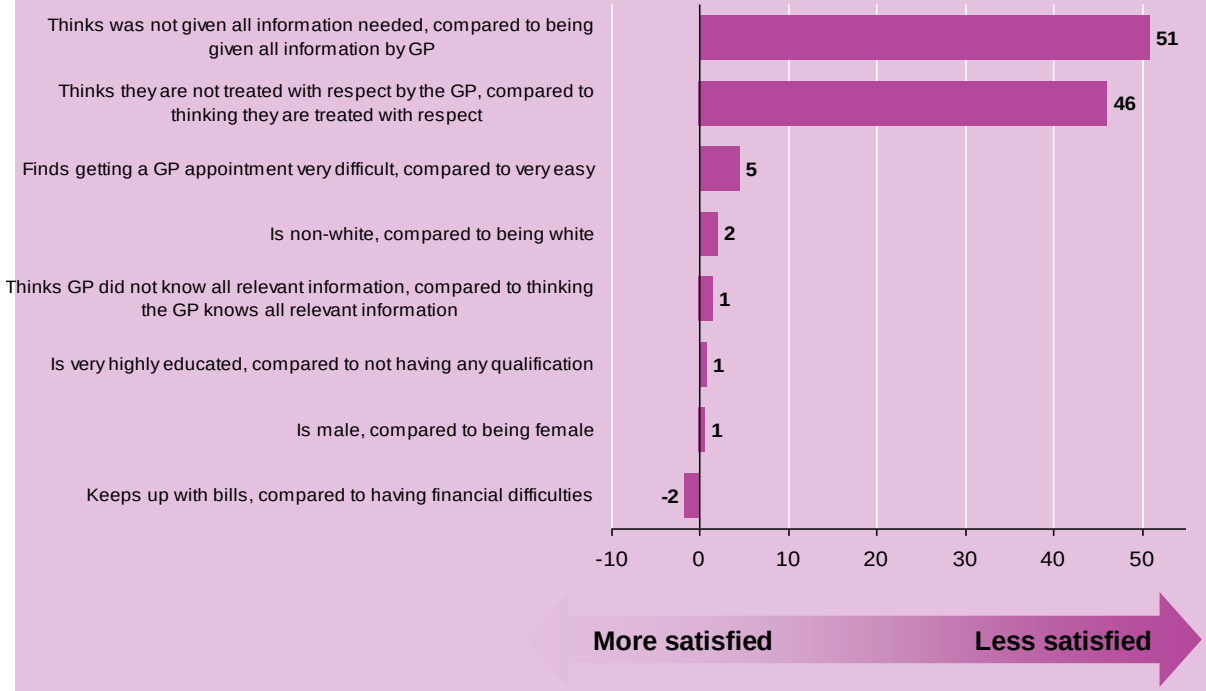
Satisfaction with health services was high, with 92% of people satisfied with their GP care and 90% of people satisfied with their hospital care,

Satisfaction with GP and hospital services were driven more by people's experience of their care rather than their personal characteristics, with the largest predictors of dissatisfaction being:

- Thinking they were not given all information
- Not being treated with dignity and respect

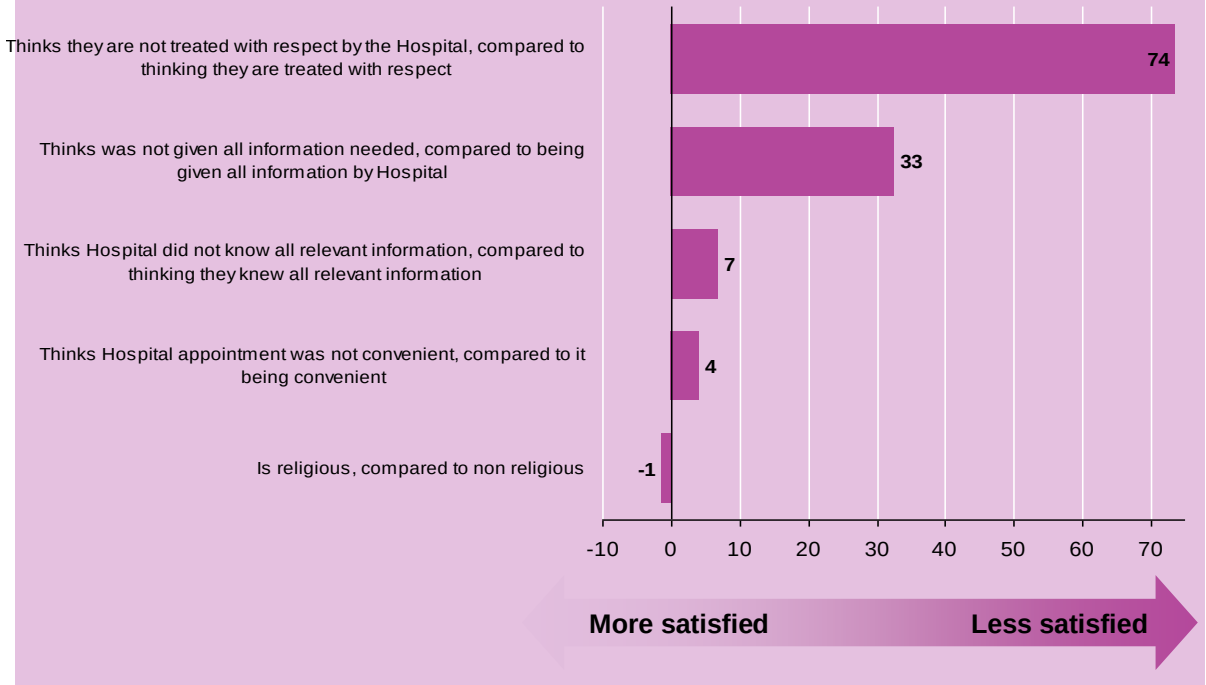
Drivers of being dissatisfied with GP care

Percentage point change in the probability of being dissatisfied with GP care if a person:



Drivers of being dissatisfied with hospital care

Percentage point change in the probability of being dissatisfied with hospital care if a person:



This finding suggests that policies to improve patient satisfaction should focus on GP and hospital communication with patients, in the sense of making sure patients feel they have all the information they need about their condition and treatment.

The main predictors of people thinking they were not treated with dignity and respect by the GP were experiencing discrimination, being young and not feeling happy. The predictors of not being treated with dignity and respect at hospital were similar but also included being anxious and being in financial difficulties.

Satisfaction with GP and hospital care and perceptions of being treated with dignity and respect did not vary significantly by Health Board.

0.3%... **… of the variation of 'Satisfaction with GP care' is due to differences between Health Boards**

0.2%... **… of the variation of 'Satisfaction with hospital care' is due to differences between Health Boards**

Most people found it easy to get to their GP (94%) and to their nearest hospital (92%). The main predictors of finding it difficult to get to a GP surgery were living in an area with a high average travel time to a GP, not having access to a car and being in poor health. Not having access to a car and being in poor health were also the main predictors of finding it difficult to get to hospital, along with feeling unsafe on public transport. These findings suggest that access to health services could be improved, possibly by additional transport provision, for those with the greatest needs.

Probability of finding it difficult to get to the hospital

9% Has use of car, employed and lives in an urban environment

37% Does not have use of car, not employed and lives in a rural environment

1 Introduction

The Welsh Government has made a commitment to include the views of health care users when measuring the performance of the NHS in Wales. Together for Health, a five year plan for NHS Wales, states that the Welsh Government will develop a national approach to measuring health user experience.

Understanding people's experiences of health services, factors that relate to them and how these may be changing over time is important for a number of reasons. This information enables those charged with the development and delivery of health services to monitor patient experience and satisfaction levels in general and to understand how and why they vary among different patient groups – and whether there are particular areas where improvements should be targeted. In addition, it enables an assessment to be made of how satisfaction levels are changing over time (and for which groups) and, consequently, the likely success of recent policy or service changes and where these need to focus in the future.

One of the Welsh Government's sources of information on this topic is the National Survey for Wales.

1.1 About the National Survey for Wales

The Welsh Government is committed to making sure its decisions and actions take into account the views of people in Wales. The National Survey for Wales is a key source of robust information on people's views about a wide range of issues. The survey covers topics such as local area and safety, public services (e.g. health, education, and transport), and wellbeing.

The survey involves annual face-to-face interviews with a representative sample of 14,500 people aged 16 and over across Wales (around 600 in each of the 22 local authorities). It has run continuously from January 2012, and the first full results (based on interviews carried out between April 2012 and March 2013) were published in May 2013.

The aims of the survey are to help the Welsh Government to:

- monitor trends in the concerns and needs of people in Wales;
- assess views and experiences of public services;
- identify areas or groups that would benefit from extra support; and
- make decisions and target resources based on sound evidence.

This report uses the results from the National Survey for 2012-13 to examine patterns in and predictors of people's satisfaction with health services.

1.2 Aims of this report

This report goes beyond descriptive statistics to explore in more detail what factors affect satisfaction with health services in Wales. The analysis used in this report makes full use of the richness of the results from the National Survey to test which factors explain why people feel dissatisfied.

The analysis controls for differences in the characteristics of respondents (such as age, health and employment status) and their local area (e.g. whether it is urban or rural, and the level of deprivation). This is a powerful technique which allows us to look at the separate effect of each factor on the results, while taking account of other factors that may affect the results.[1]

The factors we used in the models were[2]:

- **Personal characteristics** age; gender; education; religion; marital status; health of respondent; when they worked last; keep up with paying bills[3], ACORN[4]; well-being indicators (Q13 – Q17 in the NSW); Welsh language spoken; country of birth)
- **Household characteristics** number of adults and children living in the household; tenure; type of dwelling
- **Area characteristics**; urban/ rural; WIMD health score; WIMD deprivation score
- **Transport**: average travel time to GP in the area, use of a car.

Personal characteristics are known to be related to health status and use of health services. The Welsh Health Survey reports that older people are far more likely to visit a GP or use hospital services than younger people. For younger adults, women were more likely than men to have talked to a GP or seen a practice nurse.[5]

Mental and physical health status varies by age and income, with older people and those in the lowest income quintile being more likely to report health problems[6].

Recent analysis of the National Survey for Wales also shows that debt is strongly associated with low life satisfaction and a low sense of things in life

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[1] However, it does not allow us to conclude that a particular variable definitely 'causes' differences in results between different groups.

[2] Not all factors were tested in each model as some were assumed to have no theoretical connection to satisfaction with health services. A list of all the specific variables included in all models will be made available in the methodological appendix.

[3] Keeping up bill and credit cards payments was used as a proxy for income given that income was not measured in the 2012-13 National Survey.

[4] ACORN stands for 'A Classification of Residential Neighbourhoods'.

[5] Welsh Health Survey 2012: http://wales.gov.uk/docs/statistics/2013/130911-welsh-health-survey-2012-en.pdf

[6] Health Survey for England 2012 Chapter 4: http://www.hscic.gov.uk/catalogue/PUB13218/HSE2012-Ch4-Gen-health.pdf

being worthwhile, which may also impact on both use of and perceived satisfaction with services, including health services.[7]

1.3 Respondent's experience of health services: measurement

The National Survey included a series of questions about people's experiences of GP surgeries and NHS hospitals. These questions covered satisfaction with the health service in general, ease of access to health care services, whether people felt they were treated with dignity and respect, and satisfaction with the care they received. The headline descriptive results of the National Survey showed that:

- 92% of people were satisfied (68% very satisfied and 23% fairly satisfied) with the care they received from their GP at their last visit. Similarly, 90% of people were satisfied (70% very satisfied and 20% fairly satisfied) with the care they received at their last appointment at an NHS hospital.
- People aged 75 and over were found to be more satisfied with the care they received from their GP (96%) than younger adults aged between 16 and 24 (89%). Similarly, 96% of people aged 75 and over were satisfied with the hospital care they received compared with 85% of people aged 16 to 24.
- 96% of people thought they were treated with dignity and respect at their GP and the same proportion thought they were treated with dignity and respect at hospital
- 94% of people who had visited their GP in the last 12 months reported that it was easy to get there and back (the equivalent figure for getting to hospital was 92%) (Statistics for Wales, 2013[8])

A separate report in this series **(*National Survey for Wales, 2012-13 Overall satisfaction with public services in Wales*)** includes findings on overall satisfaction with the health system in Wales.

[7] Wellbeing in Wales: http://wales.gov.uk/docs/caecd/research/2014/140430-national-survey-wellbeing-wales-2012-13-en.pdf

[8] Statistics for Wales (2013) National Survey for Wales: Headline results, April 2012– March 2013

2. Satisfaction with care

The National Survey measured people's level of satisfaction with the care they received in a medical facility. The survey separately examined the levels of satisfaction with GP care and with Hospital care.

Questions about satisfaction were asked only of respondents who had experience of using services within the previous twelve months. Overall, 78% of survey respondents had attended a GP appointment about their own health in the last 12 months and 42% had attended a hospital appointment.

The following questions were used:

"Overall, how satisfied or dissatisfied were you with the care you received?" (Asked only if the respondent said they had seen a GP/family doctor about their own health in the last 12 months) With the following answer options: Very satisfied Fairly satisfied Neither satisfied nor dissatisfied Fairly dissatisfied Very dissatisfied Don't know/No opinion

"Overall, how satisfied or dissatisfied were you with the care you received?" (Asked only if the respondent said they had an appointment at an NHS hospital in the last 12 months) With the following answer options: Very satisfied Fairly satisfied Neither satisfied nor dissatisfied Fairly dissatisfied Very dissatisfied Don't know/No opinion

Satisfaction with GP and hospital care was high overall.:

- 92% were satisfied with the GP care they received (68% very satisfied and 23% fairly satisfied)
- 90% were satisfied with the hospital care they received (70% very satisfied and 20% fairly satisfied). This includes day patients, outpatients and inpatients.

This section explores the views of those who were not satisfied with the care they received (8% of people who had visited a GP and 10% who had received hospital care). This encompasses people who said they were "neither satisfied nor dissatisfied", "fairly dissatisfied" and those who said they were "very dissatisfied" – all termed "not satisfied" in the analysis below.

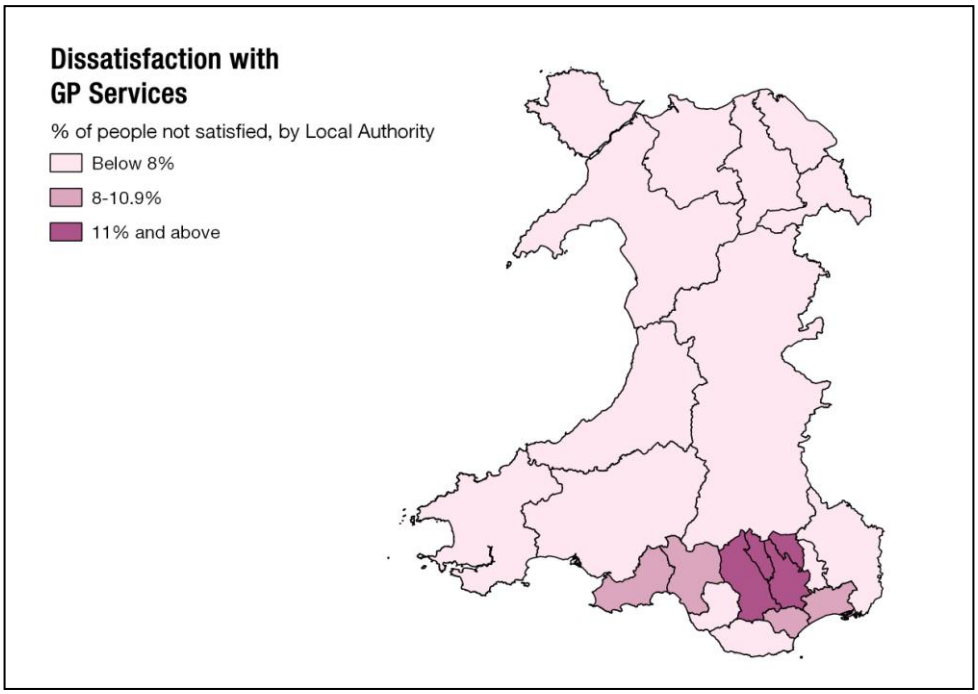
2.1 Geographical distribution

Dissatisfaction with *GP care* varied by the local authority people live in, although most people in each authority were satisfied with their care. People were more likely to be dissatisfied with GP services if they lived in:

- Merthyr Tydfil (13%)
- Caerphilly (13%)

… and were less likely to be dissatisfied in:

- Isle of Anglesey (5%)
- Torfaen (6%)
- Gwynedd (6%).

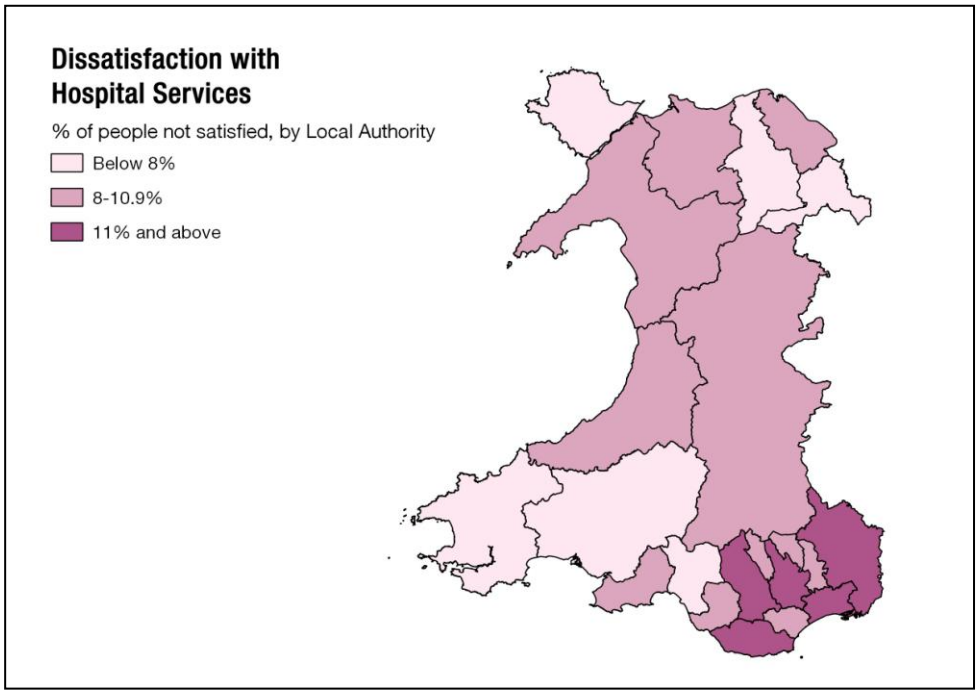


Similarly, people's satisfaction with *hospital care* varied according to which local authority they lived in. People were most likely to be dissatisfied with hospital services if they lived in:

- Newport (14%)
- Rhondda Cynon Taf (13%)
- Caerphilly (13%)

People were least likely to be dissatisfied with hospital services if they lived in

- Isle of Anglesey (6%)
- Wrexham (6%).



2.2 The predictors of satisfaction with care at the GP/family doctor

We carried out analysis to identify the relevant factors (predictors) that explain the variation in people feeling dissatisfied with GP care. This analysis allows us to identify the predictors that have a significant relationship with satisfaction when other factors are taken into account.

The main drivers of dissatisfaction with GP care are related to the experience of visiting the GP rather than to demographic characteristics (Figure 2.1). The largest drivers were:

- thinking they were not given all information needed
- thinking they were not treated with respect by the GP

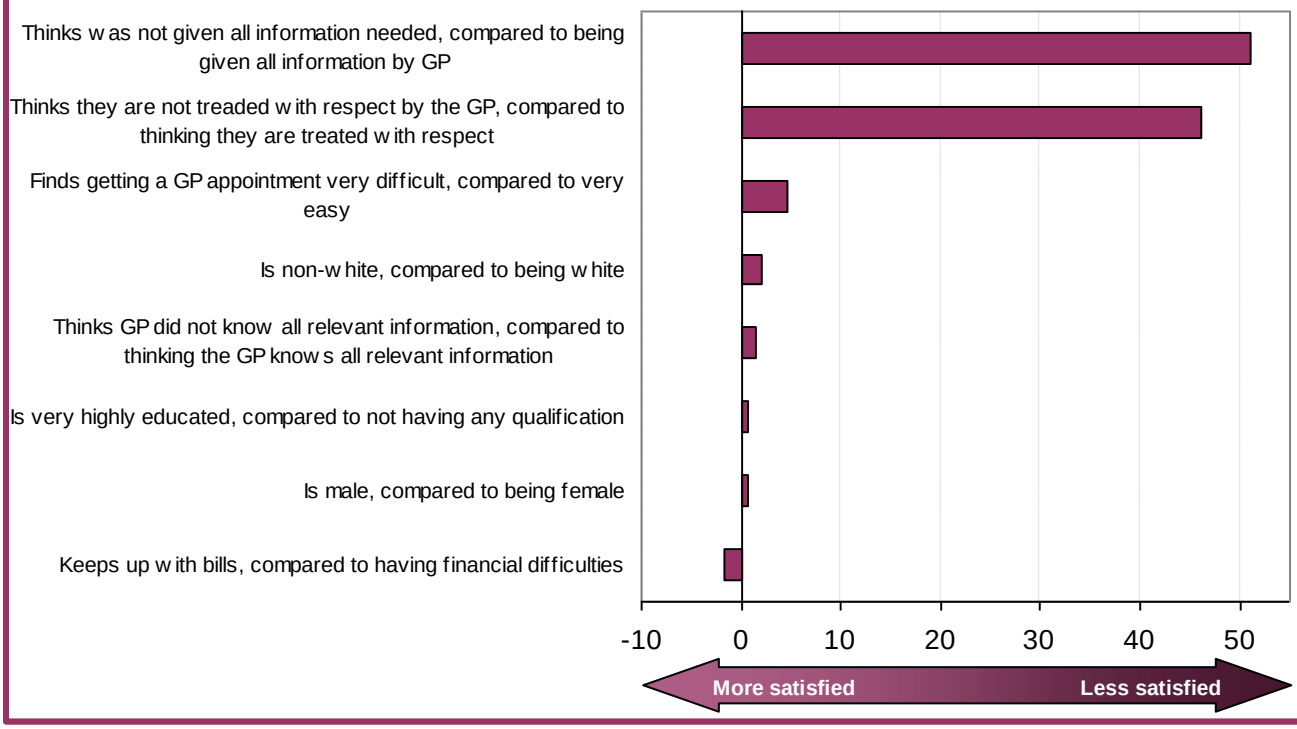
Other aspects of the GP care experience that had a significant but much smaller effect on the probability of dissatisfaction were: finding getting a GP appointment difficult and thinking that the GP did not know all the relevant information about them.

This finding is in line with previous research on patient satisfaction in England which found that good communication was more important than other elements of GP care in explaining patient satisfaction[9].

[9] Paddison, C. A. M., Abel, G. A., Roland, M. O., Elliott, M. N., Lyratzopoulos, G. and Campbell, J. L. (2013), Drivers of overall satisfaction with primary care: evidence from the English General Practice Patient Survey. Health Expectations.

Figure 2.1: Drivers of being *dissatisfied with GP care*

Percentage point change in the probability of being dissatisfied with GP care if a person:



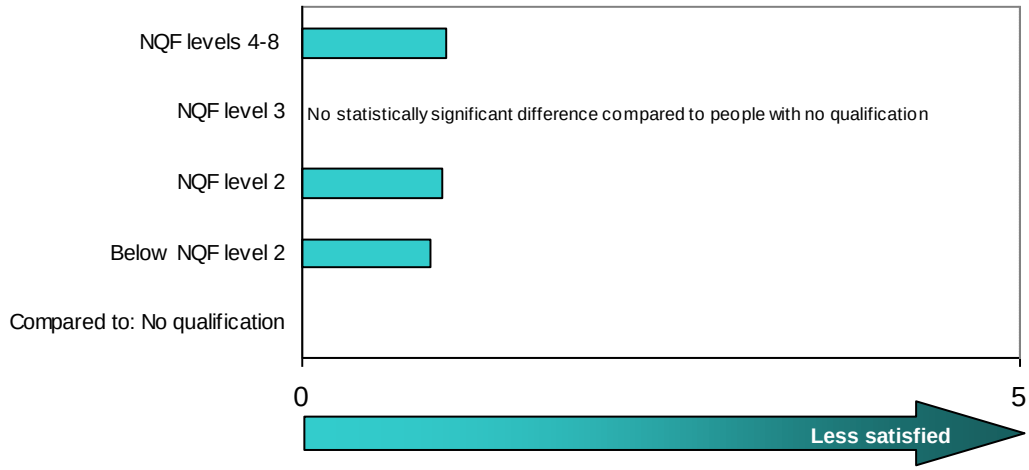
While personal characteristics were less important than experience in explaining satisfaction with GP care in the National Survey, there were a number of characteristics that had a statistically significant relationship with satisfaction. People who reported keeping up with bills were less likely to be dissatisfied with GP care than those who reported being in financial difficulty. The link between the ability to pay bills and satisfaction with GP care should be interpreted taking into account the fact that the National Survey does not collect any income related information from the respondents. As such, the ability to pay bills becomes a proxy for income.

We believe that people who are able to pay their bills without any problems are those people who are more advantaged financially, while at the other side of the spectrum are people with low income. As such, the conclusion that can be drawn is that people with higher levels of income are more satisfied with GP care. A very plausible explanation is that people with higher income are more likely to live in more prosperous areas where the GP interaction could be more stable over time, which could positively impact the perception of care.

Ethnicity[10] had a larger impact on dissatisfaction than other personal characteristics, with non-white people being more likely than white people to be dissatisfied with GP care. There were small statistically significant increases in the probability of being dissatisfied with GP care for being highly educated (NQ Level 4-8 compared with having no qualifications) and for being male (compared with being female). The relationship between qualification and satisfaction was not straightforward: while those with qualifications at NQ Levels 4-8, Level 2 and below Level 2 were more likely to be dissatisfied than those with no qualifications, there was no statistically significant difference for those with a Level 3 qualification).

Figure 2.2: Effect of education on being dissatisfied with GP care

The change in the probability of being dissatisfied with GP care when compared to people with no qualification



It is possible to predict how likely it is for people with particular characteristics to feel dissatisfied with GP care. This is calculated using the predictors of feeling dissatisfied that were identified in the above analysis. Overall, the probability of a typical person feeling dissatisfied with GP care is 1%[11].

The probability of a typical person being dissatisfied with GP care	**1%**

[10] Ethnicity is only significant at the 90% level, however it is included in this analysis due to its relative importance / effect size.

[11] This figure is calculated based on holding all explanatory variables at their *median.* This means that the probability is associated with the most common type of person in Wales (e.g. Welsh national, urban, male, white, aged between 45 and 64, educated to NQF level 2, keeping up well with financial obligations).

Table 2.1 shows the demographic variables which were shown to be significant in the regression model to illustrate what the probabilities of feeling unsafe are for people with different socio-demographic characteristics (i.e. societal groups). The table includes three key predictors: ability to pay bills, gender and ethnicity [12]. These three characteristics were found to be the greatest predictors, among all socio-demographic characteristics, in the multivariate analysis reported above.

Certain combinations of these characteristics reveal that there are groups of people who have a particularly high risk of feeling dissatisfied with GP care. It is important to note that probabilities were low for all groups. The highest probability was 8%, for non-white males who had fallen behind with many bills, and 7%, for non-white males who had fallen behind with some bills (i.e. have lower income levels). Non-white men generally had higher probabilities of being dissatisfied with GP care than other people with similar ability to keep up with bills. White women had lower probabilities of dissatisfaction than non-white women with similar ability to pay bills. Across all groups, probabilities of being dissatisfied were lower among those who were keeping up with bills than among those experiencing some degree of financial difficulty.

Table 2.1 The probability of being dissatisfied with GP care for distinct groups of people

Societal characteristics			Probability of being dissatisfied
Ability to keep up with bills	**Gender**	**Ethnicity**	
Fallen behind with many bills	Men	White	4%
Fallen behind with many bills	Men	Non-white	8%
Fallen behind with many bills	Women	White	3%
Fallen behind with many bills	Women	Non-white	6%
Fallen behind with some bills	Male	White	4%
Fallen behind with some bills	Male	Non-white	7%
Fallen behind with some bills	Women	White	3%
Fallen behind with some bills	Women	Non-white	5%
Keeping up but constantly struggling	Male	White	3%
Keeping up but constantly struggling	Male	Non-white	6%
Keeping up but constantly struggling	Women	White	2%
Keeping up but constantly struggling	Women	Non-white	4%
Keeping up but sometimes struggling	Male	White	3%
Keeping up but sometimes struggling	Male	Non-white	5%
Keeping up but sometimes struggling	Women	White	2%
Keeping up but sometimes struggling	Women	Non-white	4%
Keeping up with bills with no difficulty	Male	White	2%
Keeping up with bills with no difficulty	Male	Non-white	4%
Keeping up with bills with no difficulty	Women	White	2%
Keeping up with bills with no difficulty	Women	Non-white	3%

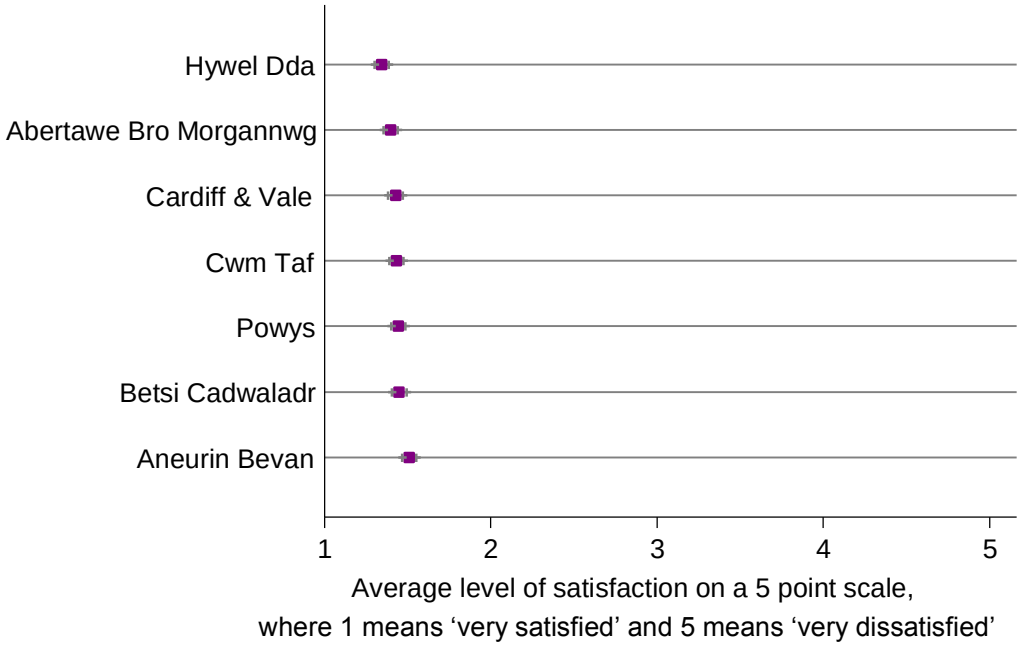
[12] For further information on the choice of variables please consult section A1.2 – *Effect sizes and presentation* in Appendix 1.

2.2.1 Differences between Health Boards

We carried out analysis to identify the extent to which levels of satisfaction with care could be explained by the Health Board area in which people live. It is possible that service delivery could vary between Health Boards and that this could have an effect on satisfaction. The analysis approach we used allowed us to consider the effect of the Health Board area when controlling for people's individual characteristics. We found that just 0.3% of the variation in satisfaction is explained by which Health Board a respondent lives in.

Figure 2.3 shows that there were no statistically significant differences between the Health Boards in the level of satisfaction with GP care, with people on average being 'very satisfied' in each Health Board.

Figure 2.3: Satisfaction with GP care, across Health Boards



0.3%...

... of the variation of 'Satisfaction with GP care' is due to differences between Health Boards

2.3 The drivers of satisfaction with care at the hospital

As with GP care, analysis was carried out to identify the relevant factors (predictors) that explain the variation in people feeling dissatisfied with hospital care (outcome).

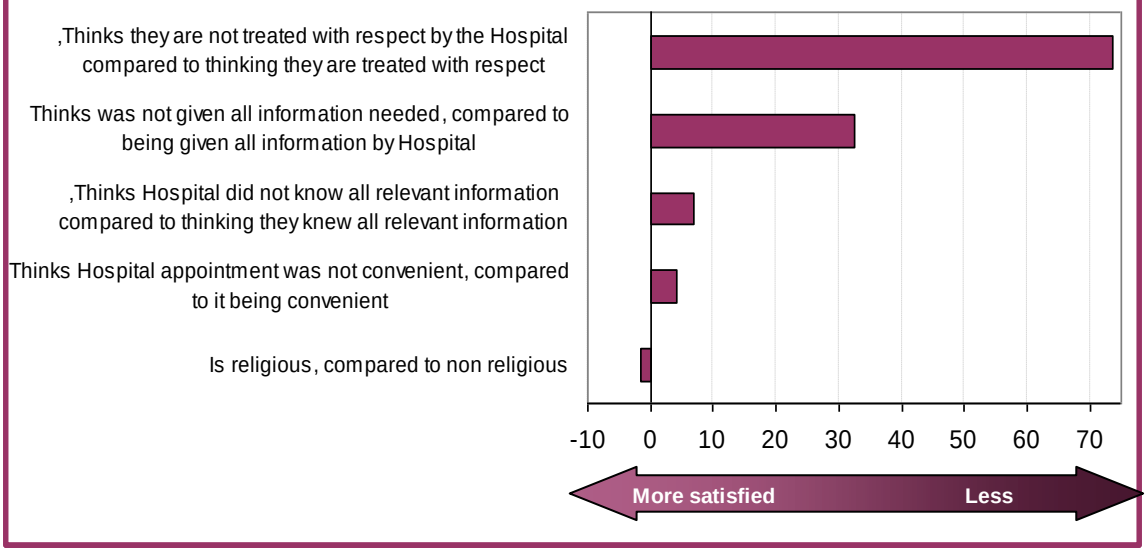
Satisfaction with hospital care was driven much more by people's experience of hospital than by their personal characteristics (Figure 2.4). The largest predictor was being treated with respect, with those who thought they were not treated with respect at hospital being more than 70 percentage points more likely to be dissatisfied with their care. Information also played a role, with those who thought they were not given all the information they needed being 30 percentage points more likely to be dissatisfied with their hospital care.

Perceived *withholding* of information was more likely to drive dissatisfaction than perceived *lack* of knowledge. People who thought the hospital didn't know all relevant information were less than 10 percentage points more likely to be dissatisfied than those who thought the hospital knew all relevant information.

The convenience of hospital appointments had only a small impact on satisfaction, with those who thought their appointment was not convenient being only around five percentage points more likely to be dissatisfied.

Figure 2.4: Drivers of being *dissatisfied with hospital care*

Percentage point change in the probability of being dissatisfied with hospital care if a person:



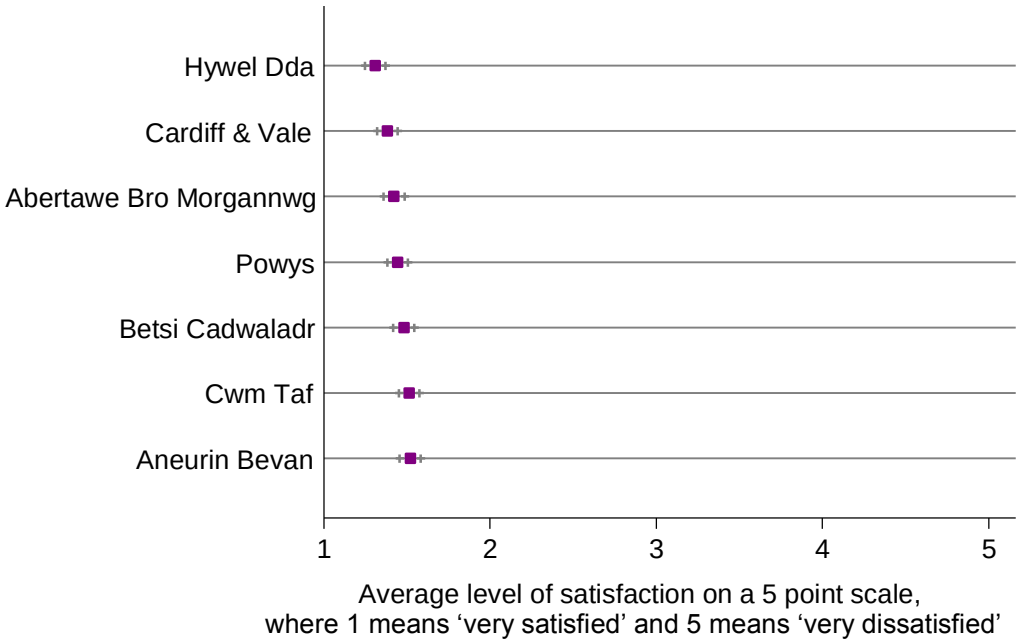
As with GP care, most people were satisfied with hospital care – the probability of a typical person being dissatisfied was just 1%.[13]

The probability of a typical person being dissatisfied with hospital care	**1%**

2.3.1 Differences between Health Boards

Average levels of satisfaction with hospital care were very high across all Health Board areas (Figure 2.5). Again, very little of the variance in satisfaction levels (0.2%) was due to which Health Board respondents live in.

Figure 2.5: Satisfaction with hospital care, across Health Boards



[13] This means the most common type of person in Wales (e.g. Welsh national, urban, male, white, aged between 45 and 64, educated to NQF level 2, keeping up well with financial obligations).

0.2%...	**… of the variation of 'Satisfaction with hospital care' is due to differences between Health Boards**

2.4 Conclusion

When considering the findings we present in this chapter (summarized below) we believe it is important to keep in mind that most people were in fact satisfied with their experience of GP and hospital care.

People's satisfaction with GP and hospital care is driven largely by their experience of care, rather than by their personal characteristics. This suggests that actions to improve satisfaction may be more effective if focused on ensuring consistently high standards of service delivery rather than targeting particular groups of health service users.

In particular, satisfaction appears to be driven by whether people feel they are treated with respect and whether they feel they have been given all the information they need. It is interesting that, for both GP and hospital care, people feeling they have not been given all the information they need is a bigger driver of dissatisfaction with care than perceiving that the medical professional did not know all the relevant information about them at the start of the appointment.. This may indicate that people value transparency in their communication with health services.

Satisfaction levels did not vary between Health Boards, indicating either that there is little variation in service delivery or that differences in service delivery at this level do not impact on patient satisfaction.

3. Dignity and respect

Section 2 showed that the perception of not being treated with dignity and respect was one of the main drivers of dissatisfaction with GP and hospital care. This section explores the drivers of perceived lack of dignity and respect.

The National Survey measures people's perceptions of treatment in both the GP and hospital settings. The questions asked were:

"Thinking about the last time you saw a GP/family doctor for your own health, to what extent do you agree or disagree with each of the following statements: *I was treated with dignity and respect"*
With the following answer options:
Strongly agree
Tend to agree
Neither agree nor disagree
Tend to disagree
Strongly disagree
Don't know/No opinion

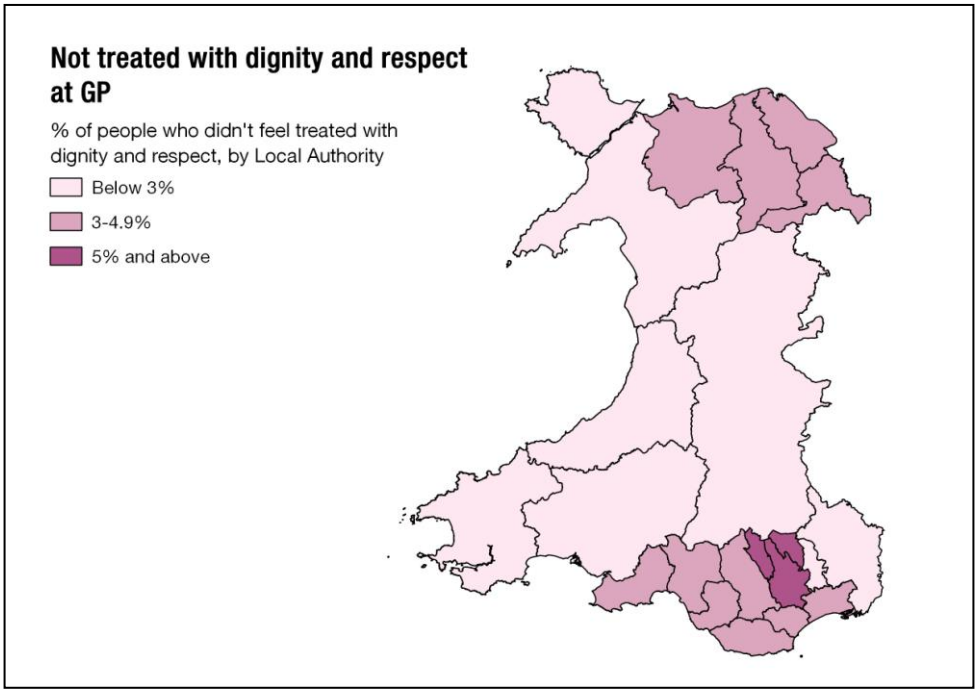
"Thinking about the last time you had an appointment at an NHS hospital, to what extent do you agree or disagree with each of the following statements: *I was treated with dignity and respect"*
With the following answer options:
Strongly agree
Tend to agree
Neither agree nor disagree
Tend to disagree
Strongly disagree
Don't know/No opinion

Most people who had used GP and hospital services agreed that they had been treated with dignity and respect (96% for both GP and hospital). This section explores the views of the 4% of people at each question who said that they "neither agree nor disagree", "tend to disagree" or "strongly disagree" – meaning that they were, to some extent, treated without dignity or respect.

3.1 Geographical distribution

The distribution of people thinking they were not treated with dignity and respect at the GP varied by the local authority in which they lived. More people thought they had not been treated with dignity and respect in:

- Merthyr Tydfil (9%)
- Blaenau Gwent (7%)

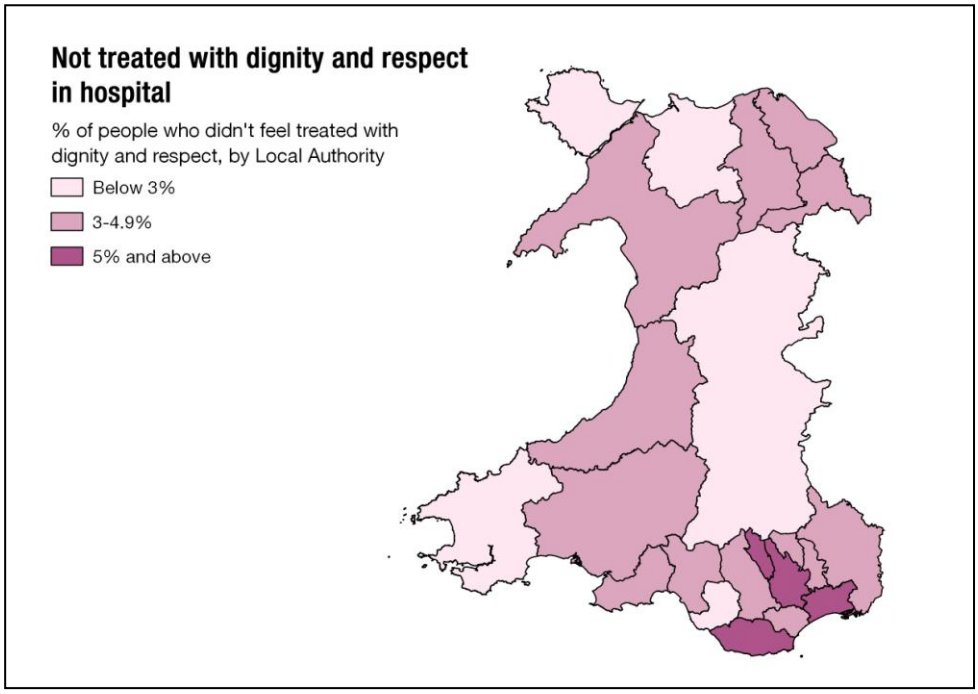


…while in Gwynedd only 1% of respondents thought they were treated without dignity and respect at the GP surgery.

People were most likely to think they were not treated with dignity and respect at hospital lived in:

- Caerphilly (7%)
- Newport (7%)
- Vale of Glamorgan (7%)

People who lived in the Isle of Anglesey were least likely to think that they were not treated with dignity and respect at hospital (2%).



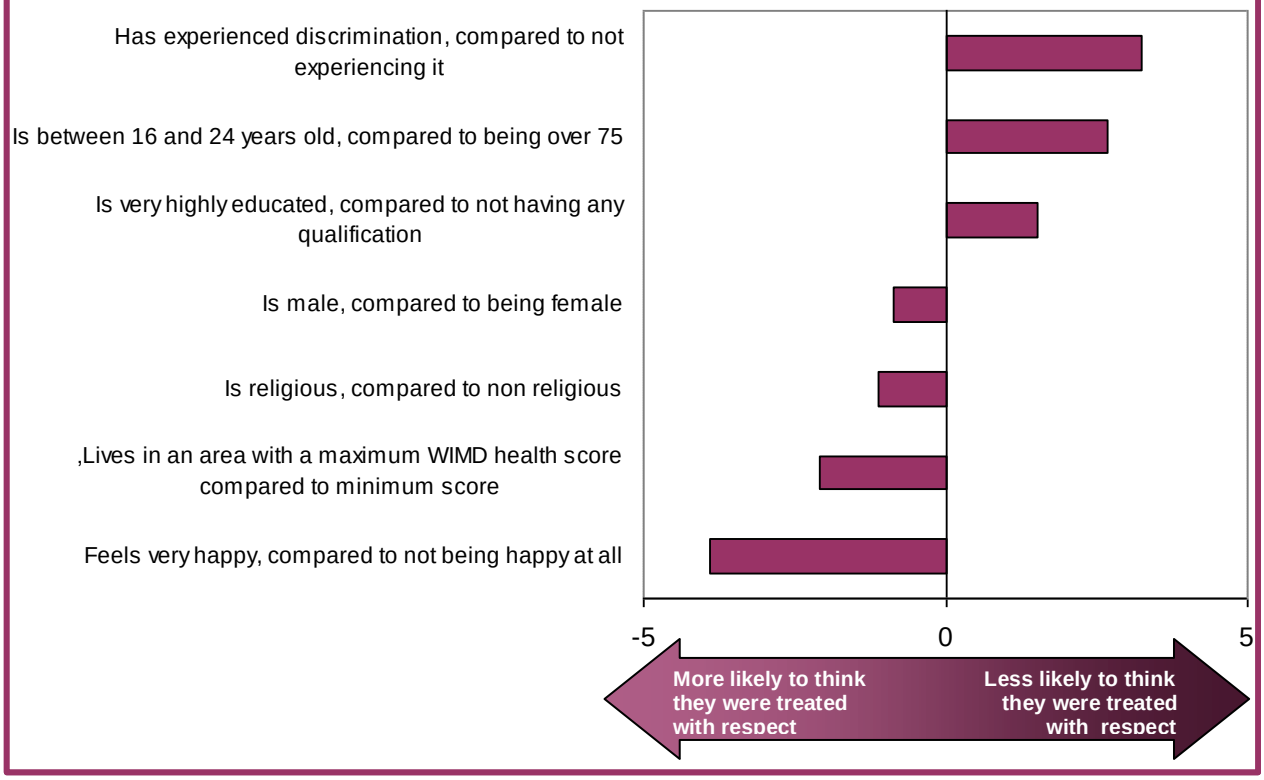
3.2. Being treated with dignity and respect at the GP surgery

We carried out analysis to pinpoint the predictors of not feeling treated with dignity and respect at the GP. There were a number of drivers which affected the probability of people thinking they were treated without dignity and respect in GP care. However it is worth noting that all of these drivers had only small effects on the probability of perceived lack of dignity and respect, with none having more than a five percentage point impact (Figure 3.1).

The strongest drivers of perceived lack of dignity and respect in GP care were reporting experience of discrimination and being young, with those aged 16-24 being more likely to say they were treated without dignity and respect than those aged 75 or over. Education also had a small but significant impact, with those with higher level qualifications being more likely to report being treated without dignity and respect than those with no qualifications.

Figure 3.1: Drivers of *being treated without dignity at the GP*

Percentage point change in the probability of perceiving to the treated without dignity and respecteing if a person:

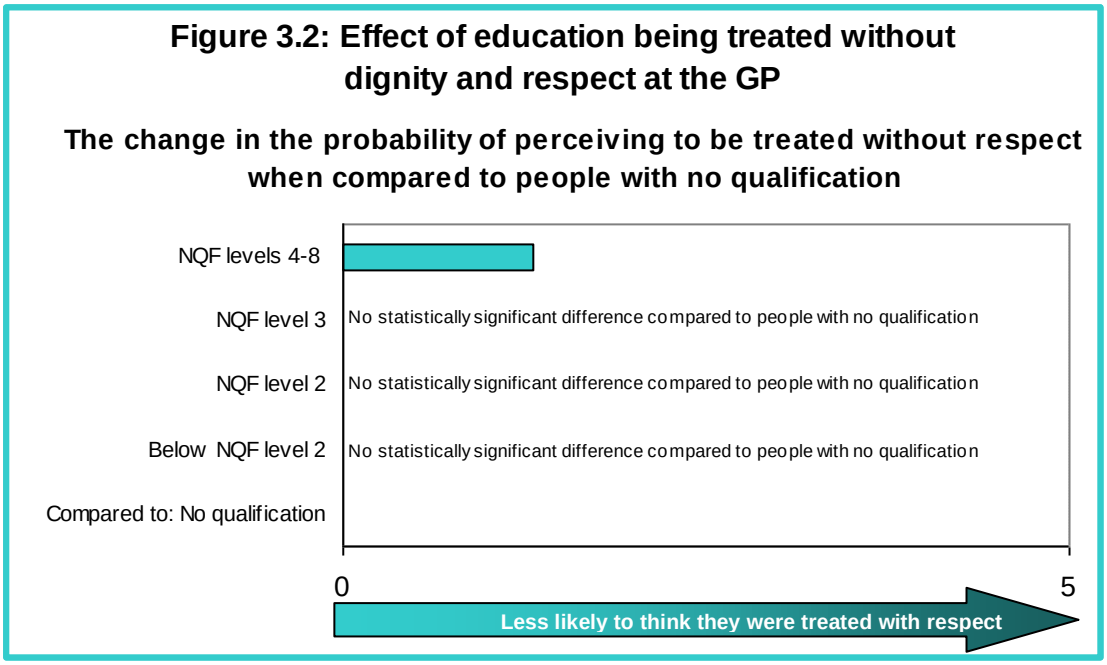


People's wellbeing appeared to influence their probability of thinking they were treated without dignity and respect, with people who reported being very happy being less likely to say they were treated without dignity and respect than those who were not happy at all. Local area-level deprivation also played

a part, with people in wards that had the highest Welsh Index of Multiple Deprivation (WIMD) health score[14] (wards with the most positive health outcomes) being less likely to say they were treated without dignity and respect at the GP than those in wards with the lowest score (wards with the poorest health outcomes).

Looking in more detail at the effect of education level, while people with NQF levels 4-8 were more likely to think they were not treated with dignity and respect than people with no qualifications, there was no difference between the views of people with qualifications at NQF level 3 or below and those with no qualifications (Figure 3.2).

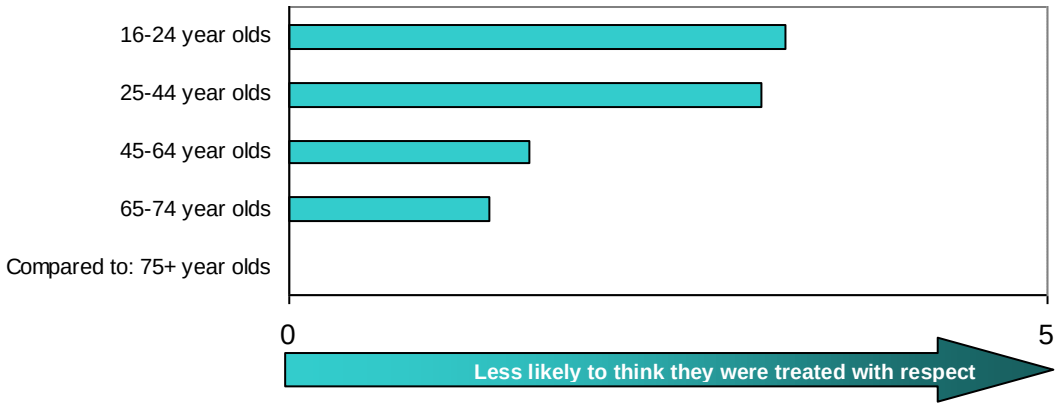
Figure 3.2: Effect of education being treated without dignity and respect at the GP



Examining the effect of age on perceived treatment at the GP, all other age groups were more likely to think they were not treated with dignity and respect than the 75 and over age group, but the difference was larger for 16-24 and 25-44 year olds (Figure 3.3).

[14] Health is one of eight domains that are used to calculate the deprivation score of wards in Wales. The health score is based on indicators including death rates, cancer incidence, life limiting illness incidence and low birth weight rate.

Figure 3.3: Effect of age on being treated without dignity at the GP



Most people thought that they were treated with dignity and respect by the GP and the probability of a 'typical' person thinking they were not treated with dignity and respect was just 3%.[15]

The probability of a typical person perceiving they were treated without dignity and respect at the GP	**3%**

Three key social-demographic predictors of feeling treated without dignity and respect are experience of discrimination, religion and gender. Table 3.1 shows how the probability of feeling treated without dignity and respect varies depending on a person's combinations of these characteristics[16]. People who had experienced discrimination had a higher probability of perceiving they were treated without dignity and respect at the GP than people of the same gender and religious outlook who had not experienced discrimination. Women who had experienced discrimination and were not religious had the highest probability of perceiving they were treated without dignity and respect (8%).

[15] This means the most common type of person in Wales (e.g. Welsh national, urban, male, white, aged between 45 and 64, educated to NQF level 2, keeping up well with financial obligations).

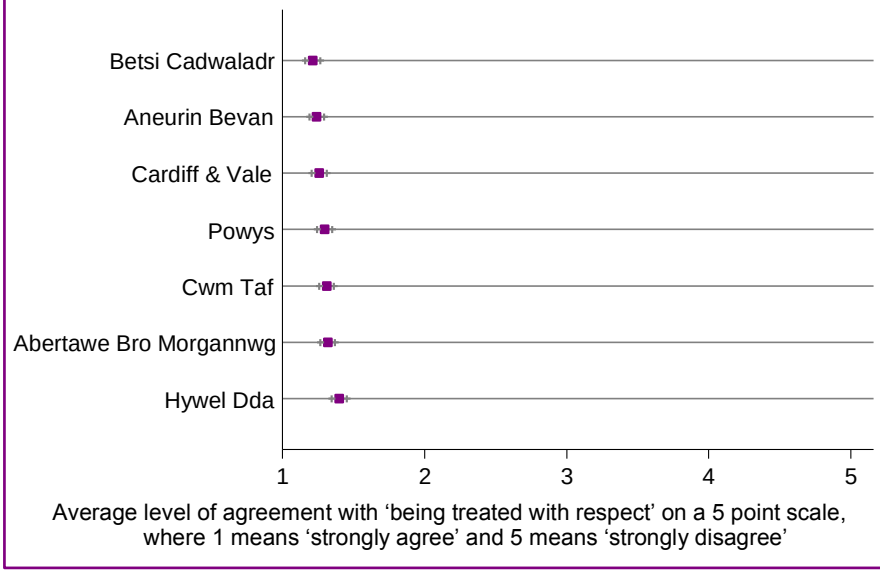
[16] For further information on the choice of variables please consult section A1.2 – *Effect sizes and presentation* in Appendix 1.

Table 3.1: The probability of perceiving to be treated without dignity and respect at the GP for distinct groups of people			
Societal characteristics			Probability of perceiving to the treated without respect
Discrimination	**Gender**	**Religion**	
Experienced discrimination	Men	Religious	4%
Experienced discrimination	Men	Not religious	6%
Experienced discrimination	Women	Religious	6%
Experienced discrimination	Women	Not religious	8%
Did not experience discrimination	Men	Religious	2%
Did not experience discrimination	Men	Not religious	3%
Did not experience discrimination	Women	Religious	2%
Did not experience discrimination	Women	Not religious	4%

3.2.1 *Differences between Health Boards*

Perceptions of being treated with dignity and respect at the GP did not differ significantly between Health Boards, with high proportions of people in all Health Boards agreeing that they were treated with dignity and respect (Figure 3.4). Less than 1% of the variation in people's likelihood of agreeing they were treated with dignity and respect was due to which Health Board people live in.

Figure 3.4: Treated with dignity at the GP's, across Health Boards



0.8%...

… of the variation of 'Being treated with dignity and respect at the GP is due to differences between Health Boards

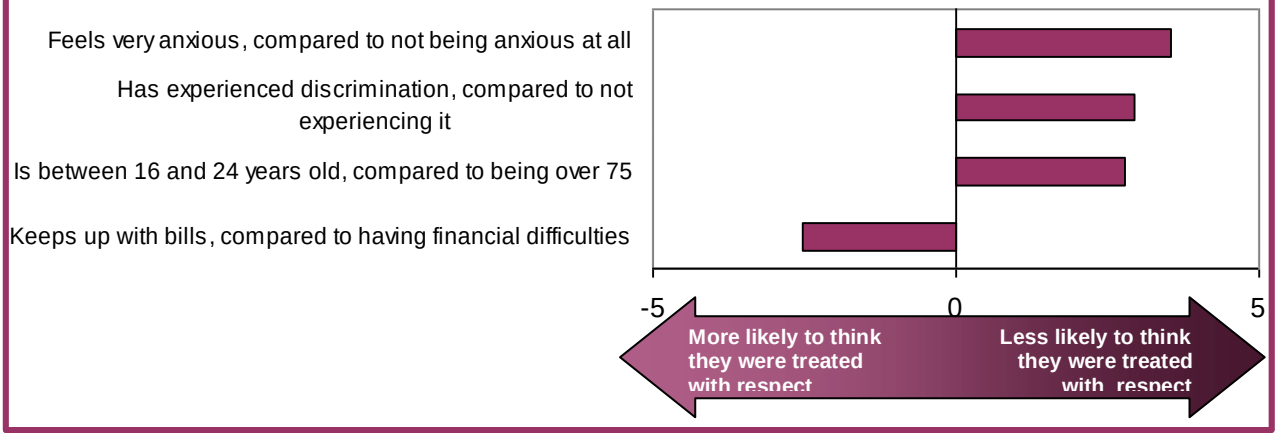
3.3 Being treated with dignity and respect at the hospital

We found a relatively small number of predictors of perceiving being treated without dignity and respect at hospital. None of these predictors affected the probability of people thinking they had been not been treated with dignity and respect by more than five percentage points (Figure 3.5). The main predictors of not feeling treated with dignity and respect at hospital were:

- being very anxious (compared with not being anxious at all),
- experiencing discrimination,
- being aged between 16 and 24 (compared with being aged 75 and over),
- being in financial difficulties (compared with being able to keep up with bills).

Figure 3.5: Drivers of being treated *without dignity at the hospital*

Percentage point change in the probability of perceiving to be treated without dignity and respect if a person:



Most people thought that they were treated with dignity and respect at hospital, with the probability of a typical person thinking they were not being only 3%.[17]

The probability of a typical person perceiving they were treated without dignity and respect at the hospital	**3%**

Table 3.2 illustrates that the probability of people perceiving they were not treated with dignity and respect at hospital increased with the level of financial difficulty they reported – however, the differences, although significant, were only small[18]. As mentioned in the introduction, we know that being in debt is strongly associated with low life satisfaction and a low sense of things in life being worthwhile. It is possible that general feelings of dissatisfaction with life may impact on perceived satisfaction with services.

[17] This means the most common type of person in Wales (e.g. Welsh national, urban, male, white, aged between 45 and 64, educated to NQF level 2, keeping up well with financial obligations).

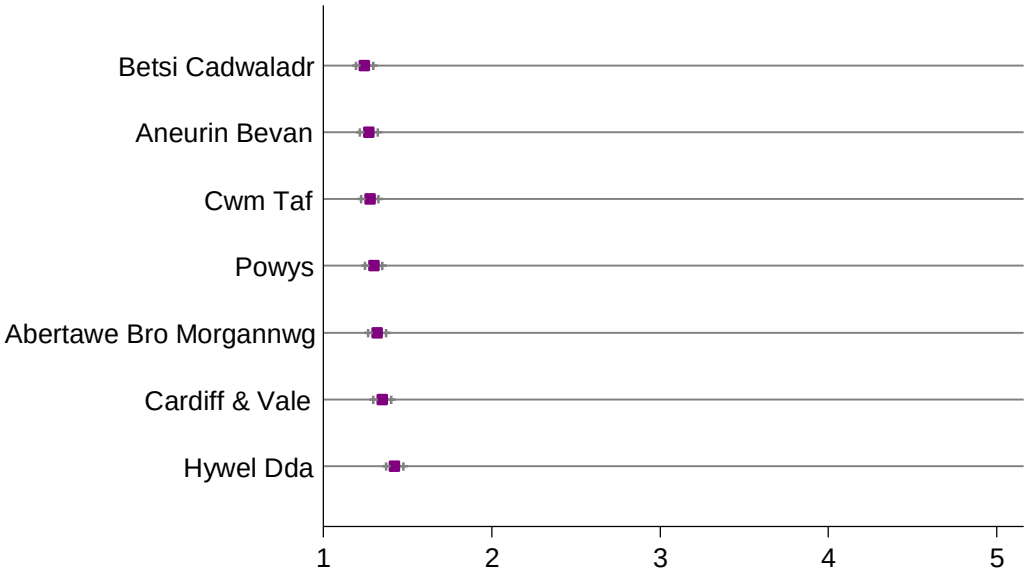
[18] For further information on the choice of variables please consult section A1.2 – *Effect sizes and presentation* in Appendix 1. Only 'ability to pay bills' is reported as it is the only socio-demographic variables that is significant in the regression.

Table 3.2 The probability of perceiving to be treated without dignity and respect at the hospital for distinct groups of people	
Societal characteristics	Probability of perceiving to the treated without respect
Ability to keep up with bills	
Fallen behind with many bills	5%
Fallen behind with some bills	5%
Keeping up but constantly struggling	4%
Keeping up but sometimes struggling	3%
Keeping up with bills with no difficulty	3%

3.3.1 Differences between Health Boards

There were no significant differences between Health Boards in perceptions of being treated with dignity and respect at hospital, with people in each Health Board on average agreeing that they were treated with dignity and respect (Figure 3.6). Less than 1% of the variation in agreement was due to the Health Board people live in.

Figure 3.6: Treated with dignity at the hospital, across Health Boards



Average level of agreement with 'being treated with respect' on a 5 point scale, where 1 means 'strongly agree' and 5 means 'strongly disagree'

3.4 Conclusions

Most people in Wales (96%) thought they were treated with dignity and respect when using GP and hospital services. Being treated with dignity and respect is a key predictor of people's satisfaction with GP and hospital care so it is important to understand in turn what is driving the perception of being treated with dignity and respect.

The finding that no factors covered in the survey had a large effect on people's perceptions of being treated with dignity and respect, suggests that these perceptions may be driven more by individual experiences of GP and hospital care. There is a relationship between perceived experience of discrimination and not being treated with dignity and respect, so further qualitative exploration of the link between these experiences may be helpful.

The analysis also shows that younger people are more likely than older people to think that they were not treated with dignity or respect in GP and hospital care. It is not clear whether this is because younger people tend to be treated differently or whether there is a generational difference in expectation.

As with overall satisfaction, perceptions of being treated with dignity and respect did not vary significantly between Health Boards, suggesting that the delivery of patient care may be similar across Health Boards.

4. Ease of getting to a medical facility

The National Survey asked people how easy or difficult they found it to get to a GP surgery or to a hospital, using the following questions:

"*How easy or difficult was it for you to get to and from the GP/family doctor surgery?" (Asked only if the responded had mentioned that he had seen a GP/family doctor about their own health in the last 12 months)*
Answer options:
Very easy
Fairly easy
Fairly difficult
Very difficult
I was visited at home (people using this answer option were eliminated from analysis)

"*How easy or difficult was it for you to get to and from the GP/family doctor surgery?" (Asked only if the responded had mentioned that they had an appointment at an NHS hospital in the last 12 months)*
Answer options:
Very easy
Fairly easy
Fairly difficult
Very difficult
I was visited at home (people using this answer option were eliminated from analysis)

This section explores the views of those who said that they found it "fairly difficult" and "very difficult" to get to and from a medical facility (GP or hospital).

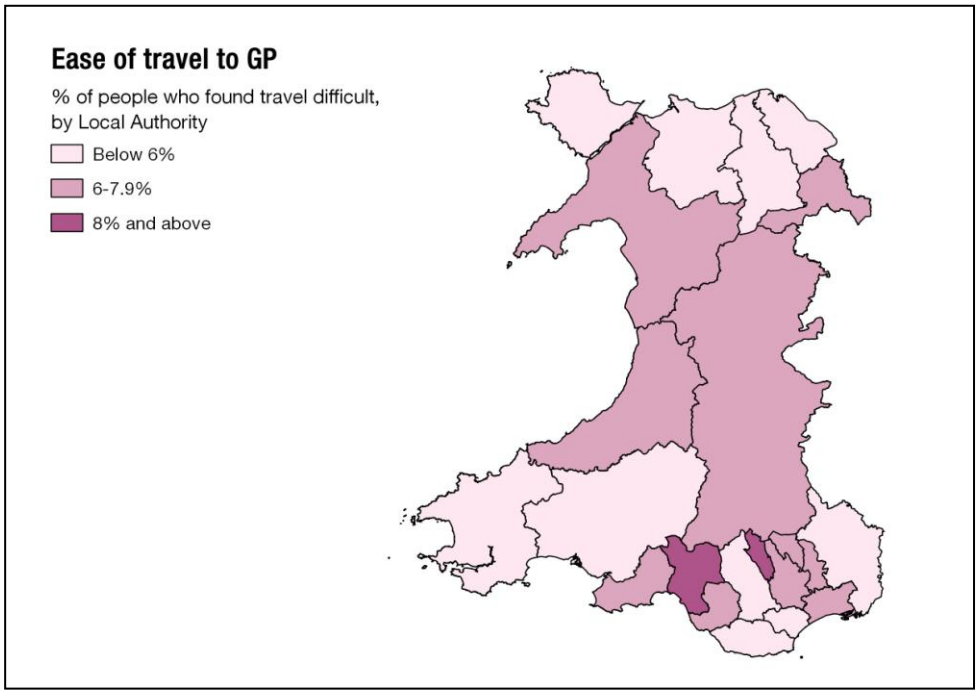
4.1 Geographical distribution

In Wales approximately 6% of people find it difficult to get to and from the GP surgery. However, a higher percentage of people reported finding it more difficult to travel to a GP when they lived in:

- Merthyr Tydfil (10%)
- Neath Port Talbot (9%).

However, those people living in the local authorities below found it, on average, easier to get to the GP:

- Monmouthshire (4%)
- Vale of Glamorgan (4%)
- Pembrokeshire (4%)
- Conwy (4%)
- Isle of Anglesey (4%).

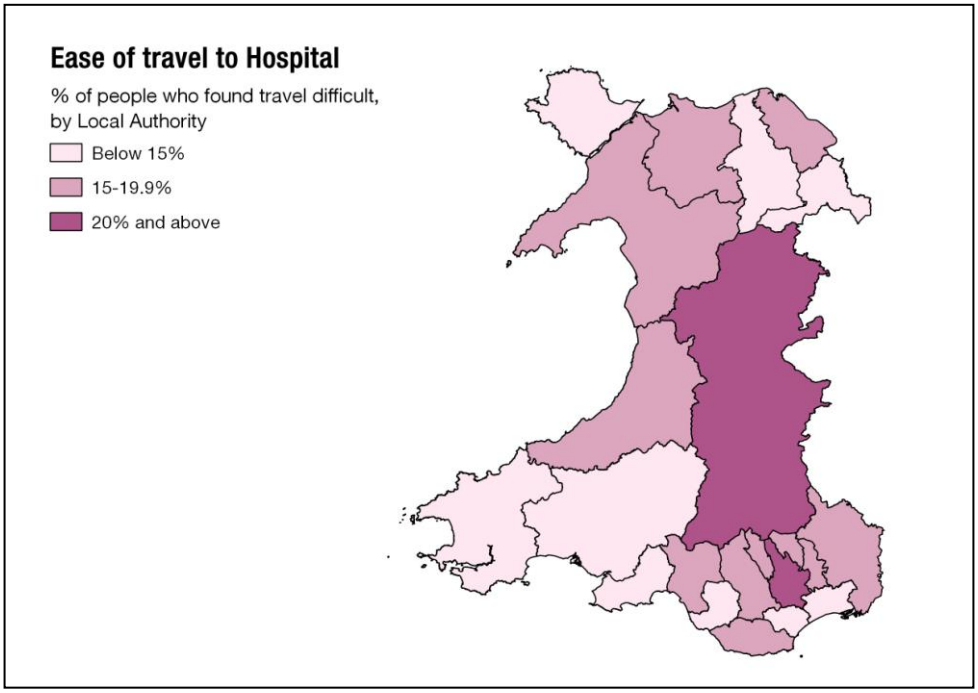


Looking at hospitals, approximately 16% of people in Wales find it difficult to get to one. However, more people were likely to report finding travel to hospital difficult when they lived in:

- Powys (25%)
- Caerphilly (20%)
- Gwynedd (20%).

… while less people were reported to find it difficult to get to a hospital in:

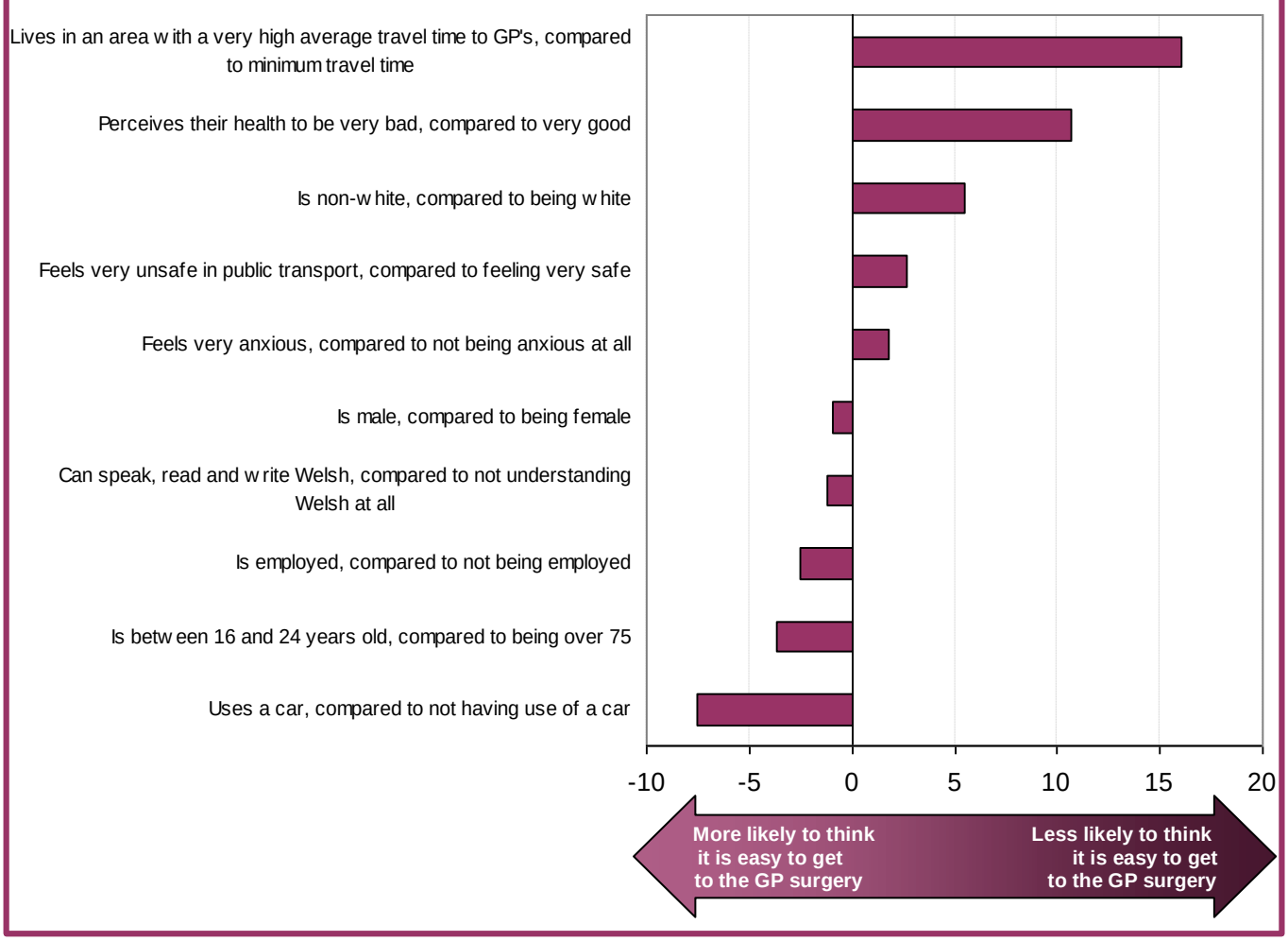
- Wrexham (8%)
- Pembrokeshire (10%)
- Bridgend (12%).



4.2 Ease of getting to the GP

There are a large number of predictors of finding it easy to get to the GP which hold even after taking other factors into account (Figure 4.1). Unsurprisingly, living in an area with higher average travel time to a GP surgery was the largest driver of perceived difficulty in getting to a GP, increasing the probability of perceived difficulty by fifteen percentage points[19].

Figure 4.1: Drivers of the *difficulty of getting to the GP*



[19] If the variable measuring travel time to the GP is removed from the regression, the 'urban/rural' becomes significant, indicating that there is a weak change in the probability of finding it difficult to get to the GP in rural areas versus urban areas. The probability of finding it difficult to get to the GP in rural areas, controlling for other factors,, is approximately 5% (CI: 3.9% to 6%), while in the rural areas it is just below 3.5% (CI: 2.8% to 4.9%). There is therefore a small increase in probability of finding it difficult to get to a GP for people in rural areas, compared with urban areas (around 1.5 percentage points; CI: 0.5 to 2.8 percentage points).

Self-reported health also influenced perceived difficulty of getting to a GP with those who reported that their health was very poor being ten percentage points more likely than those who reported very good health to say that getting to a GP was difficult.

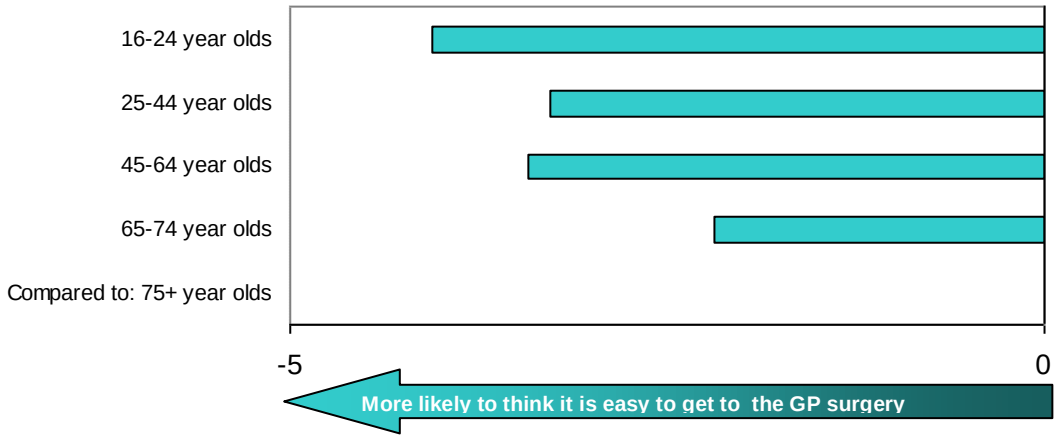
Having use of a car made people eight percentage points less likely to say that getting to a GP was difficult, suggesting that being reliant on public transport made access more problematic.

Non-white people were five percentage points more likely to say that it was difficult to get to a GP surgery.

People of all age groups below 75 were less likely than those aged 75 or over to say it was difficult to get to a GP surgery, although differences by age were not large (Figure 4.2).

Figure 4.2: Effect of age on the difficulty of getting to the GP

The change in the probability of thinking it is difficult to get to the GP surgery when compared to over 75s



The probability of a typical person thinking it is difficult to get to and from the GP surgery[20]

4%

[20] The non-rounded value is 3.6% within a 95% Confidence Interval that ranges between 2.6% and 4.7%.

The probability of a typical person thinking it was difficult to get to the GP surgery was low at just 4 per cent.[21] However, we predicted probabilities for distinct societal groups by using the three key socio-demographic variables: work status; ethnicity and use of car[22]. Table 4.1 illustrates that not having use of a car significantly increased the probability of finding it difficult to get to the GP. This was true for people who were not in employment whether they were white or non-white; and for employed people who were non-white. The group with the highest probability of finding it difficult to get to the GP surgery were not-employed non-white people without use of a car, at 30%. By contrast, employed white people with use of a car had only a 2% probability of finding it difficult.

Table 4.1 The probability of thinking it is difficult to get to and from the GP surgery for distinct groups of people (1)

Societal characteristics			Probability of finding it difficult to get to the GP
Use of car	**Work status**	**Ethnicity**	
Has use of car	Employed	White	2%
Has use of car	Employed	Non-white	5%
Has use of car	Not employed	White	4%
Has use of car	Not employed	Non-white	9%
Does not have use of car	Employed	White	7%
Does not have use of car	Employed	Non-white	17%
Does not have use of car	Not employed	White	14%
Does not have use of car	Not employed	Non-white	30%

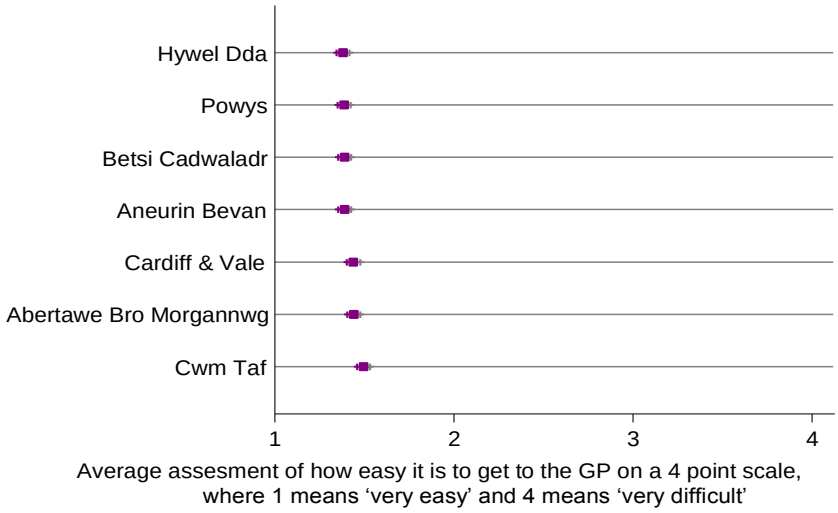
4.2.1 *Differences between Health Boards*

There was no significant variation in the average probability of finding it difficult to get to a GP between Health Boards and just 0.2% of variation in the probability of perceived difficulty is explained by which Health Board people live in (Figure 4.3).

[21] This means the most common type of person in Wales (e.g. Welsh national, urban, male, white, aged between 45 and 64, educated to NQF level 2, keeping up well with financial obligations).

[22] For further information on the choice of variables please consult section A1.2 – *Effect sizes and presentation* in Appendix 1.

Figure 4.3: Ease of getting to the GP, across Health Boards



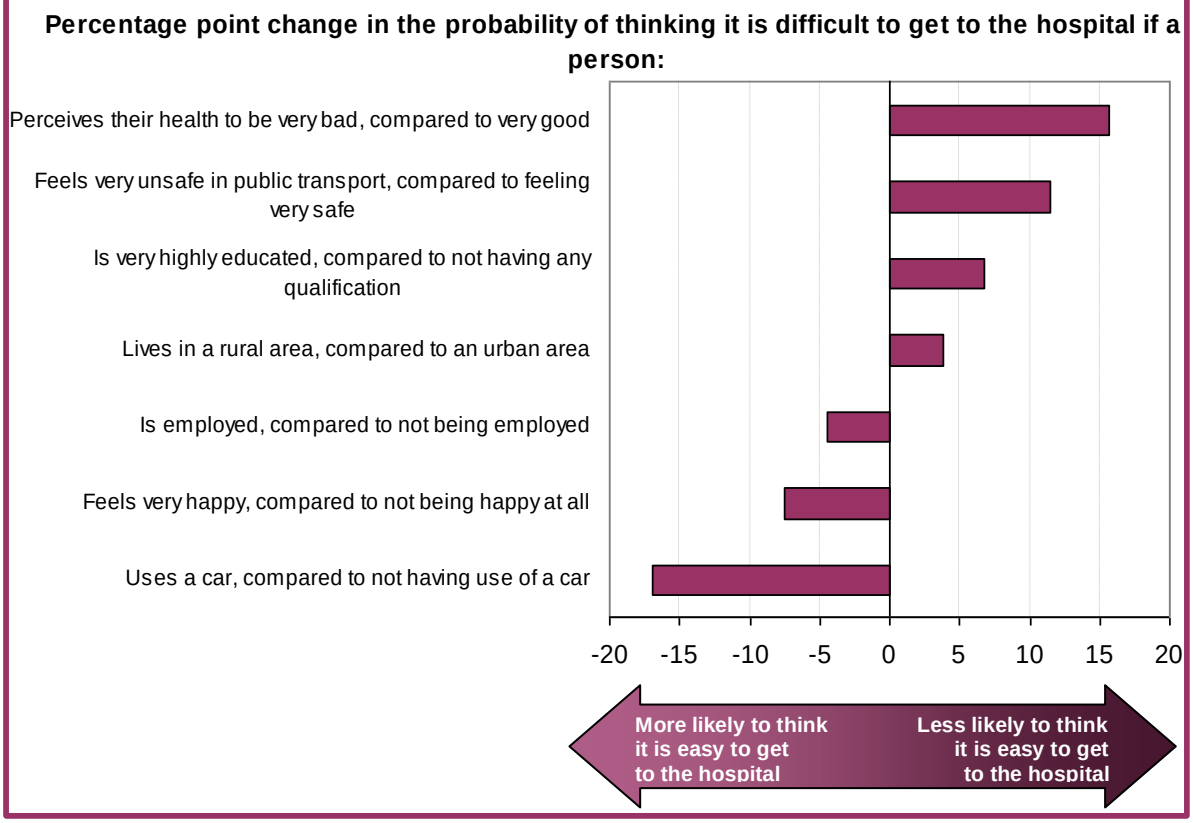
0.2%...

… of the variation of 'The ease of getting to and from the GP surgery' is due to differences between Health Boards

4.3 Ease of getting to the hospital

The main drivers of perceived difficulty in getting to hospital relate to mobility barriers (Figure 4.4). People who reported that their health was very bad were fifteen percentage points more likely to report difficulty getting to hospital than those who said their health was very good. People who had access to a car were around 17 percentage points less likely than those who did not to report difficulty getting to a hospital.

Figure 4.4: Drivers of the *difficulty of getting to the hospital*



Perceived safety on public transport was also an issue. Even after controlling for other factors, people who felt very unsafe on public transport were ten percentage points more likely to report difficulty getting to hospital than those who felt very safe. People's general outlook also played a role, with those who felt very happy being less likely to report difficulty getting to hospital than those who did not feel happy at all.

After controlling for other factors, having higher education qualifications made people more likely to report difficulty getting to hospital. Interestingly though, and again after controlling for other factors, people who were employed were less likely than those who were not employed to report difficulty.

Living in a rural area compared to an urban area had only a small impact of around four percentage points on increased probability of finding getting to hospital difficult[23].

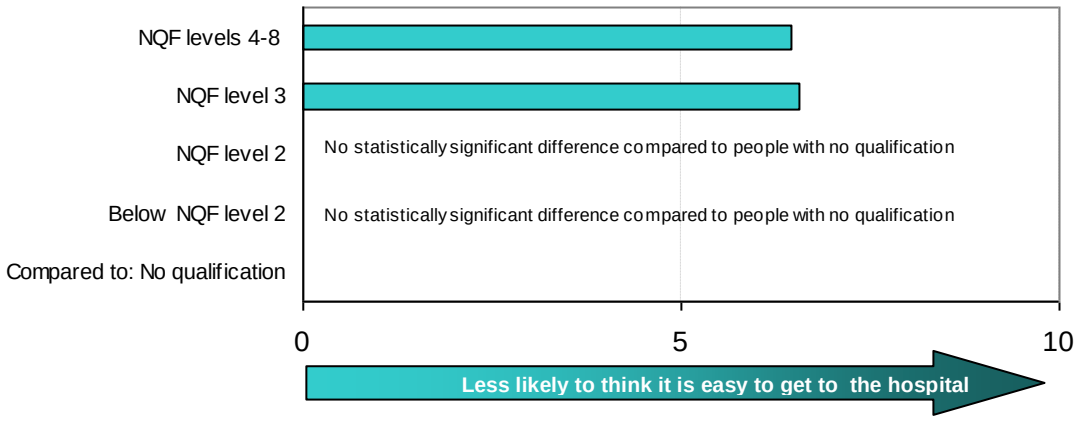
While people with qualifications at NQF level 3 or above were more likely to report difficulty getting to hospital than people with no qualifications there

[23] The confidence interval around this difference is 0.5 to 7.2 percentage points. Controlling for other factors, the probability of finding it difficult to get to the Hospital in *rural areas* is 17.8% (CI: 14.8% to 20.8%) while in *urban areas* it drops to: 13.9% (CI: 12.4% to 15.4%). The model does not include a measure of travel distance to a hospital.

were no significant differences between people with qualifications below level 3 and people with no qualifications (Figure 4.5).

Figure 4.5: Effect of education on the difficulty of getting to the Hospital

The change in the probability of thinking it is difficult to get to the hospital when compared to people with no qualification



The probability of a typical person[24] finding it difficult to get to hospital was 11%, with considerable variation between different groups of people. Not having a car greatly increased the perceived difficulty of getting to hospital regardless of whether people were employed or lived in a rural or urban area[25]. The group with the highest probability of finding it difficult to get to hospital were those who did not have a car, were not employed and lived in a rural area (37%). People with use of a car who were employed and in an urban area had the lowest probability of finding it difficult to get to hospital, at just 9%.

The probability of a typical person thinking it is difficult to get to and from the hospital	**11%**

[24] This means the most common type of person in Wales (e.g. Welsh national, urban, male, white, aged between 45 and 64, educated to NQF level 2, keeping up well with financial obligations).

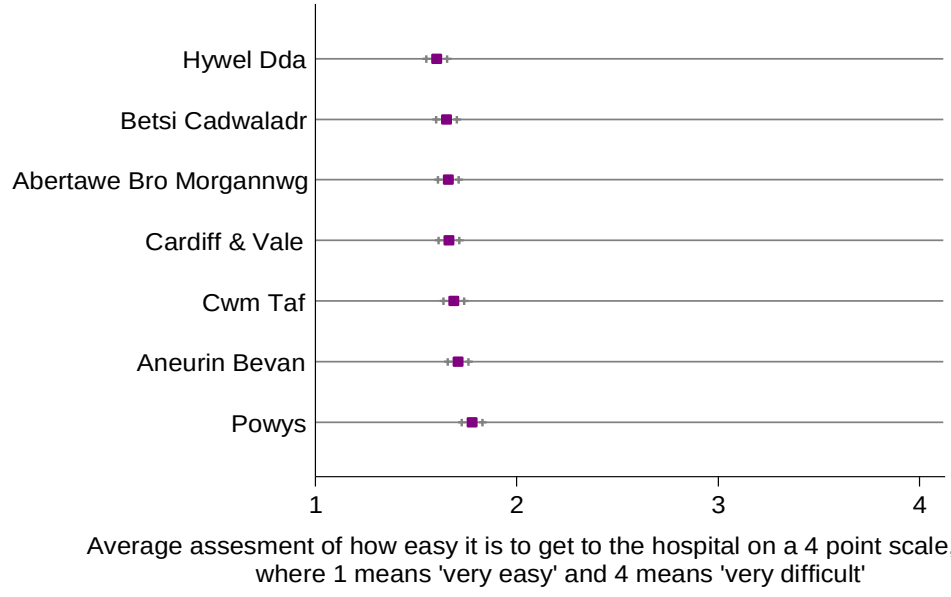
[25] For further information on the choice of variables please consult section A1.2 – *Effect sizes and presentation* in Appendix 1.

Table 4.3 The probability of thinking it is difficult to get to and from the hospital for distinct groups of people			
Societal characteristics			Probability of finding it difficult to get to the hospital
Use of car	**Work status**	**Urban / rural**	
Has use of car	Employed	Urban	9%
Has use of car	Employed	Rural	12%
Has use of car	Not employed	Urban	13%
Has use of car	Not employed	Rural	16%
Does not have use of car	Employed	Urban	23%
Does not have use of car	Employed	Rural	29%
Does not have use of car	Not employed	Urban	30%
Does not have use of car	Not employed	Rural	37%

4.3.1 *Differences between Health Boards*

Again, there was little difference in average probability of finding it difficult to get to hospital between Health Boards (Figure 4.6), with just 1% of the variation in responses being explained by which Health Board people live in.

Figure 4.6: Ease of getting to the hospital, across Health Boards



1%...	… of the variation of 'The ease of getting to and from the hospital' is due to differences between Health Boards

4.4 Conclusions

The variation in the reported ease of getting to a GP and hospital for different groups of people suggests that there are issues with equality of access. Having access to a car improved perceptions of ease of access, particularly to hospitals, which are likely to be further away than the GP. This indicates that public transport may not always be adequate. Cost may also be a factor, given that non-employed[26] people were more likely to report difficulties.

It seems obvious that people in poor health may have more problems in getting to GP surgeries and hospitals and are likely to need to do so more frequently. Greater consideration of how people in poor health access services may be needed. Those with the greater need may benefit from improved transport provision.

More research into the issues people experience in accessing GPs and hospitals and the journeys they need to take may be helpful in understanding these issues more fully.

[26] 'Non-employed people' also includes pensioners.

5. Conclusions

The vast majority of people are satisfied with health services they have used. Looking at the survey results for the minority of the people who are dissatisfied, we found that satisfaction with GP and hospital care is driven largely by people's experience of care rather than by their personal characteristics. This suggests that actions to improve satisfaction may be more effective if focused on ensuring consistently high standards of service delivery rather than targeting improvements at particular groups of health service users.

We also found that communication is a very important predictor of dissatisfaction, in the sense of making sure patients feel they have all the information they need about their condition and treatment . More research to understand why some people feel they have not been given sufficient information may be helpful to better understand this issue (and what action to take).

Satisfaction with the standard of care received did not vary between Health Boards. This was true both for GP and for hospital appointments. It indicates either that there is little variation in service delivery or that differences in service delivery at Health Board level do not impact on patient satisfaction.

Most people in Wales thought they were treated with dignity and respect when using GP and hospital services. We found that no factors covered in the survey had a large effect on people's perceptions of being treated with dignity and respect. This suggests these perceptions may be driven more by individual experiences of GP and hospital care. There is a relationship between perceived experience of discrimination and not being treated with dignity and respect, so further qualitative exploration of the link between these experiences may be helpful.

As might be expected, we found that people in poor health have more problems in getting to GP surgeries and hospitals. Greater consideration of how such people access services may be needed, for example how to improve transport provision.

More research into the issues people experience in accessing GPs and hospitals and the journeys they need to take (for example, surveys, qualitative interviews and travel diaries) may be helpful in understanding these issues

Appendix 1: Methodology

A1.1 Recoding

Both outcome and explanatory variables were extensively tidied up and recoded for the purposes of this analysis. Those who refused to answer a particular question, or for those who were otherwise missing, were excluded from any particular regression including that category. Efforts were made however to ensure the largest possible sample sizes for each section of the analysis.

Explanatory variables
In the case of the explanatory variables, the general approach was to code variables as either continuous or binary variables, in order to facilitate interpretation of the final models. For example, several categorical variables were grouped into two categories. In the case of religion, this meant those who were religious in one group, and all others in another group.

Other categorical variables were recoded into several binary variables. In the case of a variable such as tenure, three binary 'dummies' representing owner occupier, private renter and social renter were created, and in the regressions, these were used to interpret the effect of being in each category compared to the reference category, which in this case was owner occupier. In other cases, such as with economic status, it was decided to use one dummy which compared those in employment versus everyone else.

In other cases, variables were treated as continuous in the regression. Age was grouped into five age categories, and then treated as an ordinal / continuous variable. In the regressions, a difference in the outcome variable by age was interpreted as the difference when jumping one age category to the next.

Attitudinal questions on a Likert scale (e.g. strongly agree to strongly disagree) were also treated as continuous variables in the regressions.

Outcome variables
It was decided to use logistic regression to model factors associated with assessments of health services. This would produce easier to interpret results. We included 6 outcome variables:

- Satisfaction with GP care and satisfaction with hospital care were measured separately for people who had seen a GP or had had a hospital appointment in the last 12 months. The answer options were recorded on a 5 point scale and ranged from 'Very satisfied' to 'Very dissatisfied'. We recoded the variables into dichotomous variables by grouping together people who were satisfied versus those who were not satisfied. The second group was formed by the people who were dissatisfied and very dissatisfied but also those who were neither satisfied nor dissatisfied. Those who refused, or volunteered a 'don't know' answer were excluded.

- Being treated with dignity and respect at the GP and being treated with dignity and respect at the hospital were measured by asking people how much do they agree with this statement. Answer option were recorded on a 5 point scale and ranged from 'Strongly agree' to 'Strongly disagree'. We recoded the variable into a dichotomous variable by grouping together people who stated they agreed and those who said they strongly agree. The second group was formed by the people who did not agree (neither agree nor disagree; disagree and strongly disagree). Those who refused, or volunteered a 'don't know' answer were excluded.
- Finally, the ease of getting to and from the GP and the ease of getting to and from the hospital were originally coded into four categories: "Very easy", "Fairly easy", "Fairly difficult" and "Very difficult". For the purposes of logistic regression, the outcome variables were recoded into dichotomous variables, grouping those who felt the trip was either very or fairly easy together, against those who felt it was very or fairly difficult. Those who refused, or volunteered a 'don't know' answer were excluded.

A1.2 Multivariate analysis: logistic regressions

A multivariate regression approach was taken to assess the relationships between a variety of demographic, attitudinal and behavioural variables on the outcome variables while controlling for other factors. Background demographic variables were chosen to be the same across all regressions, and then a range of other explanatory variables were chosen to include based on the hypothesis that they would be related to the outcome variable.

Before running the regressions, correlations between these explanatory variables were tested, with variables which correlated very highly not included in the same regression. Some variables with correlations over 0.7 were identified. To further ensure relationships between explanatory variables would not undermine the validity of the regressions, they were then tested for multicollinearity (that is, relationships with a range of other variables). Any variables with a VIF (variance inflation factor) above 5 or so would indicate danger. This was not found to be the case for any of the regressions.

The logistic regressions were performed in Stata (Version 12), using the 'logistic' command using a backwards stepwise approach, and weighted by the adult sample weight[27].

Backwards stepwise regressions use an iterative method, whereby all explanatory variables are included in a model, whereupon variables that don't meet the threshold of significance (in this case a p-value of .05) are removed

[27] To be able to generate the R Squared coefficient we chose to individually weight each regression by the sample adult weight as opposed to using the automatic 'svy' command in Stata. This also means that sample stratification structure (stratification by LAs) is not modelled. This is appropriate as there are virtually no differences in the Standard Errors between models which take into account the stratification and those who do not.

in order of decreasing p-value, with the model re-run each time, until a final model is generated containing only those variables found to have significant relationships with the outcome measure.

However, it is also possible to 'force' certain variables into the final model regardless of significance, and this was done here for a set range of demographic variables. This was done in order that results across regressions would consistently control for the same background factors. These variables included age, gender, urbanity, economic status, educational qualifications, financial struggles, ethnicity, religion and Welsh identity.

Approaches to effect interpretation

There are two general approaches to understanding and presenting the effects the explanatory variables have on the outcome:

1. Classical Regression (logistic regression in this case): the explanatory variables are introduced in the regression as ordinal or continuous variables, in which case the regression coefficients show the impact on the outcome if an explanatory variable increases by 1 unit. Such an approach is very useful when the aim of the regression is to identify a ranking of the explanatory variables in terms of the size of their effect. That is, being able to point out which factor has the biggest effect on the outcome.

2. Dummy variable (logistic) regression: this approach works in a similar way to the one above however all ordinal or continuous explanatory variables are recoded into dummy variables which are then entered into the regression. In all cases one would enter a number of dummy variables which equals the number of values the original variable had minus one. The omitted dummy represents the 'reference category'. This means that the regression coefficients now produced indicate how the effect associated with one category of a variable differs compared to the reference category. This is useful in comparing demographic differences (and allows for non-linear effects) within the same variables, but it cannot be used to compare the effect of variables.

In summary, the first approach indicates which the primary drivers of an outcome are while the second approach indicates how people in different demographic subgroups (e.g. people in different age groups) compare on the outcome. We believe both approaches are necessary to provide the adequate insight, which is why we decided to implement a combination of the two.

In the analysis of each outcome variable we start by running a regression based on the first approach. If this regression identifies age or education[28] (both included as ordinal variables) as significant predictors of the outcome

[28] We chose age and education for this exercise given that they are the most likely demographics that might not have linear effects.

we proceed to apply the second approach, in which we rerun the initial regression but include age and education as dummy variables. We present the results in subsequent tables displayed in Appendix 2.

For each regression, the tables in Appendix 2 include the relevant coefficients (and other measures of effect size – see below) levels of statistical significance, the sample size and the model fit (R squared or Pseudo R squared for logistic regressions). The R Squared coefficient indicates how well each regression model fits the data. In other words, it shows whether the regression contains the appropriate variables that can explain the outcome. The R squared value ranges from 0 to 1, where 0 indicates a very poor fit and 1 indicates a perfect fit. In general the fit of our models is between 0 and 0.5, which for social data is not the least surprising.

Effect size and presentation

To aid the interpretation of the regression results by policy makers without a statistical background we provide several tools.

1. The results of the classical regressions (which include the ordinal and continuous explanatory variables) are presented in a graph (coloured in purple). The graph displays the size of the effect for the variables that were shown to have a statistically significant effect (we use the 95% cut-off). Even though traditionally logistic regression results are interpreted (and reported) in terms of odds ratios, we decided on using a more intuitive method. As such, for each variable we computed the percentage point difference between the probability of the outcome occurring when it is at its highest level (e.g. the probability of being dissatisfied with GP care for people with high education, levels 4-8) and the probability of the outcome occurring when it is at its lowest level (e.g. the probability of being dissatisfied with GP care for people with no qualification). The resulting figure indicates the maximum impact the explanatory variable can have on the outcome.

2. If in the initial regression we observe that age or education has a significant effect on the outcome, as mentioned before, we run a dummy variable regression to try to tease out the differences in the outcome that are due to being a member of a specific societal subgroup compared to a reference category. The results are reported in the graphs (coloured in light blue) which display the differences between the different levels of age and education and the respective reference categories. Even though the regressions include an identical set of variables to the original regressions, for ease of interpretation these variables are not included in the graphs. Please see Appendix 2 for the full regression tables.

3. Based on the initial regressions we computed what the probability of a typical individual experiencing the outcome is (e.g. being dissatisfied with GP care). This probability is computed based on holding all

explanatory variables at their *median.* This means that the probability is associated with the most common type of person in Wales (e.g. Welsh national, urban, male, white, aged between 45 and 64, educated to NQF level 2, keeping up well with financial obligations).

4. Finally, once more, based on the initial regressions we also provide a table containing fitted probabilities for specific societal subgroups. The probabilities are computed while all other variables in the regression are held at their mean. This means that the probabilities are comparable between each row of the table. To build the tables we chose from between the demographic variables which the regressions showed to have significant effects on the outcome. A maximum number of three demographic variables were chosen – generally these were the demographics with the largest effect on the outcome. This section of the analysis is meant to be a 'profiling' exercise through which we supply information on distinct social groups - that is why only demographic variables are included.

A1.3 Multivariate analysis: Multilevel modelling

The National Survey collected data from people within all 7 Health Board areas in Wales. As such, aside from allowing us to understand how people's characteristics affect their attitudes it can also provide us with a description of whether attitudes vary between different Health Boards. We analyse those differences by using Multilevel modelling (MLM). In this case, multilevel modelling is the most efficient way of measuring where there are any significant differences. Statistically, the use of multilevel is required when modelling data structured on separate levels to avoid generating incorrect (deflated) standard errors and inflated Type 1 error rates.

We implemented MLM models for each outcome variable included in the report. In implementing the analysis we ran several sequential models in Stata (Version 12):

1. **Null Multilevel model: Random effects ANOVA**. This model does not include any predictors and is meant to indentify what proportion of the variance of satisfaction is due to cross-LHB differences as compared to differences between individuals. The results of the model are reported in Appendix 2. Aside from regular regressions outputs the results also include the values of the variance components (i.e. the errors at the different levels). These are the 'within Health Board, between respondent variance of the mean (WHB)' and the 'between Health Board variance of the mean' (BHB)[29]. Based on these values we computed the Intra-class Correlation coefficient[30] which indicates what

[29] The WHB shows how an individual's level of satisfaction deviates from the mean level of satisfaction in the Health Board in which he/she resides. The BHB shows how the mean level of satisfaction in a particular Health Board deviates from the grand mean of satisfaction (i.e. across Wales).

[30] The ICC (Intra-class Correlation) is computed based on this formula:

% of the variance in satisfaction is due to differences between Health Boards.

2. **Random Intercept Model.** This is a fixed effects model, similar to the previous one, but in which we included the individual level predictors found to be significant in the simple regression. Based on the results of this model (Appendix 2) we estimated (and graphed) the mean level of satisfaction in each of the 7 Health Boards. The estimated means (and their 95% Confidence Intervals) were computed based on the regression coefficient for the Intercept to which we summed the estimated level-2 error term which was estimated using the Empirical Bayes estimation method. Finally, it needs to be mentioned that the predictor variables were centred so that their mean would equal 0.

ICC=(BHB / (BHB+WHB))*100

Appendix 2: Full regression results

Table A.1: Logistic regression results: being dissatisfied with GP care

Independent variables	Description	Odds Ratio	95% Confidence Interval		Percentage point change between maximum and minimum values
natidwel	National Identity - Welsh	0.764	0.563	1.035	-0.57%
dvagegrp3	Derived variable - Age group 3	1.109	0.943	1.305	0.86%
dvethnicity	Derived variable - Ethnicity (White or non-white)	2.039	0.896	4.643	2.05%
dvhiqual2	Highest educational qualification	1.099	1.002	1.205	0.76%
rel	Religion	0.782	0.592	1.033	-0.53%
urbrurdum	Urban-Rural classification	0.927	0.682	1.262	-0.15%
working	In paid or unpaid work	0.859	0.640	1.154	-0.31%
finbilcred	Finance - ability to keep up with bills and credit commitments at present	0.847	0.727	0.986	-1.69%
gender	Gender	1.349	1.030	1.767	0.63%
gpappease	GP - ease of getting an appointment at a convenient time	1.719	1.496	1.976	4.53%
gpdigresp	GP - treated with dignity and respect	2.746	2.220	3.398	46.06%
gpinfoneed	GP - respondent or carer was given all the information needed	3.148	2.725	3.637	50.97%
gpknewinfo	GP - at the start of the appointment the GP/family doctor knew all the relevant	1.156	1.015	1.317	1.45%
_cons	Intercept	0.000	0.000	0.001	
Model fit:	*Pseudo R squared*	*0.460*			
Base:		*9574*			
	Effect not statistically significant				

Table A.2: Logistic regression results: being dissatisfied with GP care (categorical)					
Independent variables	Description	Odds Ratio	95% Confidence Interval		Percentage point change between maximum and minimum values
natidwel	National Identity - Welsh	0.761	0.563	1.029	-0.57%
dvagegrp3	Derived variable - Age group 3	1.093	0.924	1.293	0.73%
dvethnicity	Derived variable - Ethnicity (White or non-white)	2.103	0.929	4.761	2.16%
_Idvhiqual2_1	Below NQF level 2	1.647	1.007	2.693	0.89%
_Idvhiqual2_2	NQF level 2	1.710	1.084	2.697	0.98%
_Idvhiqual2_3	NQF level 3	1.502	0.929	2.429	0.69%
_Idvhiqual2_4	NQF levels 4-8	1.724	1.131	2.628	1.00%
Compared to: No qualification		0.000			
rel	Religion	0.786	0.596	1.038	-0.51%
urbrurdum	Urban-Rural classification	0.936	0.686	1.275	-0.13%
working	In paid or unpaid work	0.848	0.634	1.134	-0.33%
finbilcred	Finance - ability to keep up with bills and credit commitments at present	0.852	0.731	0.993	-1.60%
gender	Gender	1.350	1.029	1.771	0.63%
gpappease	GP - ease of getting an appointment at a convenient time	1.715	1.493	1.971	4.46%
gpdigresp	GP - treated with dignity and respect	2.757	2.234	3.403	46.21%
gpinfoneed	GP - respondent or carer was given all the information needed	3.160	2.733	3.653	51.06%
gpknewinfo	GP - at the start of the appointment the GP/family doctor knew all the relevant	1.155	1.014	1.315	1.43%
_cons	Intercept	0.000	0.000	0.001	
Model fit:	*Pseudo R squared*	*0.461*			
Base:		*9574*			
	Effect not statistically significant				

Table A.3: Multilevel models predicting dissatisfaction with GP care by Health Board			
Independent variables	Description	Model 1 Random effects ANOVA	Model 2 Random intercept model
_cons	Intercept	1.47	1.43
natidwel	National Identity - Welsh		-0.05
dvhiqual2	Highest educational qualification		0.02
finbilcred	Finance - ability to keep up with bills and credit commitments at present		-0.03
gender	Gender		0.05
gpappease	GP - ease of getting an appointment at a convenient time		0.11
gpdigresp	GP - treated with dignity and respect		0.37
gpinfoneed	GP - respondent or carer was given all the information needed		0.38
gpknewinfo	GP - at the start of the appointment the GP/family doctor knew all the relevant		0.06
Between HB variance of mean		0.002	0.003
Within HB, between responded variance of the mean		0.708	0.362
Base:		*11561*	*9594*
	Effect not statistically significant		

Table A.4: Logistic regression results: being dissatisfied with Hospital care					
Independent variables	Description	Odds Ratio	95% Confidence Interval		Percentage point change between maximum and minimum values
natidwel	National Identity - Welsh	0.906	0.623	1.317	-0.30%
dvagegrp3	Derived variable - Age group 3	1.214	0.976	1.510	2.48%
dvethnicity	Derived variable - Ethnicity (White or non-white)	1.858	0.874	3.950	2.47%
dvhiqual2	Highest educational qualification	1.055	0.931	1.197	0.64%
rel	Religion	0.642	0.469	0.878	-1.45%
urbrurdum	Urban-Rural classification	1.008	0.715	1.420	0.02%
working	In paid or unpaid work	1.004	0.657	1.533	0.01%
finbilcred	Finance - ability to keep up with bills and credit commitments at present	1.203	0.963	1.502	1.80%
gender	Gender	1.212	0.868	1.692	0.58%
hspknewinf	Hospital - at the start of the appointment the health professional knew all the	1.419	1.222	1.647	6.82%
hspappconv	Hospital - was/is appointment convenient	2.522	1.273	4.995	4.12%
hspdigresp	Hospital - treated with dignity and respect	3.452	2.746	4.340	73.70%
hspinfneed	Hospital - respondent or carer was given all the information needed	2.258	1.898	2.686	32.55%
_cons	Intercept	0.000	0.000	0.001	
Model fit:	*Pseudo R squared*	*0.429*			
Base:		*5770*			
	Effect not statistically significant				

Table A.5: Multilevel models predicting dissatisfaction with Hospital care by Health Board			
Independent variables	Description	Model 1 Random effects ANOVA	Model 2 Random intercept model
_cons	Intercept	1.48	1.44
dvagegrp3	Derived variable - Age group 3		0.05
dvhiqual2	Highest educational qualification		0.02
urbrurdum	Urban-Rural classification		-0.01
finbilcred	Finance - ability to keep up with bills and credit commitments at present		0.03
hspknewinf	Hospital - at the start of the appointment the health professional knew all the		0.09
hspappconv	Hospital - was/is appointment convenient		0.31
hspdigresp	Hospital - treated with dignity and respect		0.53
hspinfneed	Hospital - respondent or carer was given all the information needed		0.29
Between HB variance of mean		0.002	0.005
Within HB, between responded variance of the mean		0.835	0.427
Base:		*11561*	*5783*
	Effect not statistically significant		

Table A.6: Logistic regression results: thinking was not treated with dignity and respect and the GP's					
Independent variables	Description	Odds Ratio	95% Confidence Interval		Percentage point change between maximum and minimum values
natidwel	National Identity - Welsh	1.082	0.793	1.477	0.20%
dvagegrp3	Derived variable - Age group 3	1.287	1.104	1.500	2.68%
dvethnicity	Derived variable - Ethnicity (White or non-white)	1.186	0.489	2.877	0.46%
dvhiqual2	Highest educational qualification	1.167	1.048	1.298	1.53%
rel	Religion	0.660	0.495	0.880	-1.12%
urbrurdum	Urban-Rural classification	0.867	0.598	1.257	-0.35%
working	In paid or unpaid work	0.847	0.626	1.147	-0.41%
finbilcred	Finance - ability to keep up with bills and credit commitments at present	0.994	0.848	1.165	-0.06%
gender	Gender	0.706	0.517	0.965	-0.85%
expdiscr	Experienced any discrimination, harassment or abuse in the last 12 months	2.456	1.740	3.466	3.25%
wbhapyest	Well-being - overall happiness yesterday (0-10 scale)	0.891	0.837	0.949	-3.91%
wimdhlth	Welsh Index of Multiple Deprivation - health score	1.000	0.999	1.000	-2.07%
_cons	Intercept	0.050	0.019	0.132	
Model fit:	*Pseudo R squared*	*0.066*			
Base:		*10502*			
	Effect not statistically significant				

Tables A.7: Logistic regression results: thinking was not treated with dignity and respect and the GP's (categorical)

Independent variables	Description	Odds Ratio	95% Confidence Interval		Percentage point change between maximum and minimum values
natidwel	National Identity - Welsh	1.104	0.810	1.504	0.24%
_Idvagegrp3_2	65-74 year olds	2.419	1.246	4.698	1.32%
_Idvagegrp3_3	45-64 year olds	2.699	1.521	4.791	1.58%
_Idvagegrp3_4	25-44 year olds	4.403	2.388	8.117	3.11%
_Idvagegrp3_5	16-24 year olds	4.584	2.150	9.774	3.27%
Compared to: 75+ year olds					
dvethnicity	Derived variable - Ethnicity (White or non-white)	1.118	0.448	2.788	0.28%
_Idvhiqual2_1	Below NQF level 2	0.884	0.528	1.479	-0.27%
_Idvhiqual2_2	NQF level 2	0.830	0.496	1.391	-0.39%
_Idvhiqual2_3	NQF level 3	0.836	0.492	1.420	-0.37%
_Idvhiqual2_4	NQF levels 4-8	1.585	1.027	2.446	1.31%
Compared to: No qualification					
rel	Religion	0.670	0.502	0.895	-1.04%
urbrurdum	Urban-Rural classification	0.869	0.599	1.261	-0.33%
working	In paid or unpaid work	0.813	0.590	1.121	-0.50%
finbilcred	Finance - ability to keep up with bills and credit commitments at present	1.009	0.862	1.180	0.08%
gender	Gender	0.722	0.527	0.989	-0.77%
expdiscr	Experienced any discrimination, harassment or abuse in the last 12 months	2.476	1.759	3.486	3.19%
wbhapyest	Well-being - overall happiness yesterday (0-10 scale)	0.891	0.838	0.948	-3.77%
wimdhlth	Welsh Index of Multiple Deprivation - health score	1.000	0.999	1.000	-1.94%
_cons	Intercept	0.045	0.018	0.115	
Model fit:	*Pseudo R squared*	*0.461*			
Base:		*9574*			
	Effect not statistically significant				

Table A.8: Multilevel models predicting not being treated with dignity and respect at the GP's, by Health Board

Independent variables	Description	Model 1 Random effects ANOVA	Model 2 Random intercept model
_cons	Intercept	1.30	1.47
natidwel	National Identity - Welsh		-0.03
dvagegrp3	Derived variable - Age group 3		0.10
urbrurdum	Urban-Rural classification		-0.03
finbilcred	Finance - ability to keep up with bills and credit commitments at present		-0.02
expdiscr	Experienced any discrimination, harassment or abuse in the last 12 months		0.21
wbhapyest	Well-being - overall happiness yesterday (0-10 scale)		-0.02
wimdhlth	Welsh Index of Multiple Deprivation - health score		0.00
Between HB variance of mean		0.003	0.002
Within HB, between responded variance of the mean		0.386	0.818
Base:		*11559*	*6274*
	Effect not statistically significant		

Tables A.9: Logistic regression results: thinking was not treated with dignity and respect and the Hospital

Independent variables	Description	Odds Ratio	95% Confidence Interval		Percentage point change between maximum and minimum values
natidwel	National Identity - Welsh	0.978	0.688	1.390	-0.07%
dvagegrp3	Derived variable - Age group 3	1.233	1.040	1.463	2.79%
dvethnicity	Derived variable - Ethnicity (White or non-white)	0.912	0.271	3.073	-0.27%
dvhiqual2	Highest educational qualification	1.070	0.939	1.219	0.83%
rel	Religion	0.856	0.579	1.266	-0.49%
urbrurdum	Urban-Rural classification	1.050	0.705	1.566	0.15%
working	In paid or unpaid work	1.237	0.850	1.799	0.67%
finbilcred	Finance - ability to keep up with bills and credit commitments at present	0.848	0.722	0.996	-2.52%
gender	Gender	0.896	0.617	1.302	-0.33%
expdiscr	Experienced any discrimination, harassment or abuse in the last 12 months	2.049	1.293	3.248	2.95%
wbanxyest	Well-being - overall anxiety yesterday (0-10 scale)	1.097	1.028	1.171	3.56%
_cons	Intercept	0.025	0.008	0.079	
Model fit:	*Pseudo R squared*	*0.044*			
Base:		*5874*			
	Effect not statistically significant				

Table A.10: Logistic regression results: thinking was not treated with dignity and respect and the Hospital (categorical)

Independent variables	Description	Odds Ratio	95% Confidence Interval		Percentage point change between maximum and minimum values
natidwel	National Identity - Welsh	0.974	0.687	1.381	-0.08%
_Idvagegrp3_2	65-74 year olds	1.357	0.672	2.742	0.67%
_Idvagegrp3_3	45-64 year olds	1.716	0.847	3.478	1.33%
_Idvagegrp3_4	25-44 year olds	2.804	1.357	5.796	3.30%
_Idvagegrp3_5	16-24 year olds	1.796	0.772	4.180	1.48%
Compared to: 75+ year olds		0.000			
dvethnicity	Derived variable - Ethnicity (White or non-white)	0.837	0.252	2.780	-0.50%
dvhiqual2	Highest educational qualification	1.046	0.917	1.193	0.55%
rel	Religion	0.868	0.590	1.279	-0.44%
urbrurdum	Urban-Rural classification	1.076	0.722	1.603	0.23%
working	In paid or unpaid work	1.172	0.777	1.769	0.49%
finbilcred	Finance - ability to keep up with bills and credit commitments at present	0.863	0.733	1.015	-2.18%
gender	Gender	0.916	0.630	1.334	-0.27%
expdiscr	Experienced any discrimination, harassment or abuse in the last 12 months	2.066	1.304	3.274	2.97%
wbanxyest	Well-being - overall anxiety yesterday (0-10 scale)	1.093	1.024	1.167	3.35%
_cons	Intercept	0.026	0.009	0.080	
Model fit:	*Pseudo R squared*	*0.048*			
Base:		*5847*			
	Effect not statistically significant				

Table A.11: Multilevel models predicting not being treated with dignity and respect at the Hospital, by Health Board

Independent variables	Description	Model 1 Random effects ANOVA	Model 2 Random intercept model
_cons	Intercept	1.30	1.47
finbilcred	Finance - ability to keep up with bills and credit commitments at present		-0.02
dvagegrp3	Derived variable - Age group 3		0.10
expdiscr	Experienced any discrimination, harassment or abuse in the last 12 months		0.22
wbanxyest	Well-being - overall anxiety yesterday (0-10 scale)		0.01
Between HB variance of mean		0.004	0.001
Within HB, between responded variance of the mean		0.444	0.821
Base:		*6459*	*6275*
	Effect not statistically significant		

Tables A.12: Logistic regression results: perceived difficulty of getting to the GP					
Independent variables	Description	Odds Ratio	95% Confidence Interval		Percentage point change between maximum and minimum values
natidwel	National Identity - Welsh	1.248	0.953	1.634	0.75%
dvagegrp3	Derived variable - Age group 3	0.773	0.679	0.880	-3.68%
dvethnicity	Derived variable - Ethnicity (White or non-white)	2.676	1.342	5.337	5.44%
dvhiqual2	Highest educational qualification	1.068	0.968	1.178	0.91%
rel	Religion	1.059	0.797	1.407	0.20%
urbrurdum	Urban-Rural classification	1.100	0.811	1.491	0.34%
working	In paid or unpaid work	0.486	0.358	0.661	-2.52%
finbilcred	Finance - ability to keep up with bills and credit commitments at present	0.885	0.778	1.007	-1.97%
gender	Gender	0.760	0.586	0.986	-0.94%
lasafe8	Local area - safety traveling by public transport after dark	1.263	1.115	1.432	2.67%
traveltogpsurgery	average travel time to a GPs surgery (mean time in minutes)	1.014	1.007	1.021	16.05%
welangabil	Welsh language ability	0.909	0.833	0.992	-1.22%
caruse	Use of a car for activities such as visiting local shops or going to the doctor	0.239	0.185	0.309	-7.57%
wbanxyest	Well-being - overall anxiety yesterday (0-10 scale)	1.047	1.010	1.086	1.78%
genhealth	Health in general	1.636	1.434	1.867	10.67%
_cons	Intercept	0.065	0.024	0.175	
Model fit:	*Pseudo R squared*	*0.189*			
Base:		*9003*			
	Effect not statistically significant				

Table A.13: Logistic regression results: perceived difficulty of getting to the GP (categorical)

Independent variables	Description	Odds Ratio	95% Confidence Interval		Percentage point change between maximum and minimum values
natidwel	National Identity - Welsh	1.260	0.964	1.647	0.78%
_Idvagegrp3_2	65-74 year olds	0.647	0.462	0.904	-2.19%
_Idvagegrp3_3	45-64 year olds	0.453	0.320	0.643	-3.42%
_Idvagegrp3_4	25-44 year olds	0.478	0.307	0.745	-3.27%
_Idvagegrp3_5	16-24 year olds	0.356	0.196	0.648	-4.06%
Compared to: 75+ year olds		0.000			
dvethnicity	Derived variable - Ethnicity (White or non-white)	2.544	1.276	5.075	4.99%
dvhiqual2	Highest educational qualification	1.064	0.964	1.174	0.85%
rel	Religion	1.091	0.812	1.465	0.30%
urbrurdum	Urban-Rural classification	1.105	0.815	1.499	0.35%
working	In paid or unpaid work	0.495	0.360	0.682	-2.43%
finbilcred	Finance - ability to keep up with bills and credit commitments at present	0.884	0.774	1.008	-1.99%
gender	Gender	0.761	0.587	0.986	-0.93%
lasafe8	Local area - safety traveling by public transport after dark	1.254	1.107	1.420	2.55%
traveltogpsurgery	average travel time to a GPs surgery (mean time in minutes)	1.014	1.007	1.021	16.21%
welangabil	Welsh language ability	0.905	0.828	0.988	-1.27%
caruse	Use of a car for activities such as visiting local shops or going to the doctor	0.251	0.194	0.325	-7.14%
wbanxyest	Well-being - overall anxiety yesterday (0-10 scale)	1.048	1.011	1.087	1.81%
genhealth	Health in general	1.669	1.459	1.909	11.23%
_cons	Intercept	0.051	0.020	0.130	
Model fit:	*Pseudo R squared*	*0.190*			
Base:		*9003*			
	Effect not statistically significant				

Tables A.14: Multilevel models predicting the difficulty of getting to the GP, by Health Board			
		Model 1	Model 2
Independent variables	Description	Random effects ANOVA	Random intercept model
_cons	Intercept	1.40	1.41
natidwel	National Identity - Welsh		0.03
working	In paid or unpaid work		-0.12
lasafe8	Local area - safety traveling by public transport after dark		0.07
traveltogpsurgery	average travel time to a GPs surgery (mean time in minutes)		0.00
welangabil	Welsh language ability		-0.02
caruse	Use of a car for activities such as visiting local shops or going to the doctor		-0.34
wbanxyest	Well-being - overall anxiety yesterday (0-10 scale)		0.01
genhealth	Health in general		0.10
Between HB variance of mean		0.001	0.002
Within HB, between responded variance of the mean		0.438	0.380
Base:		*11419*	*9832*
	Effect not statistically significant		

Table: A.15: Logistic regression results: perceived difficulty of getting to the Hospital					
Independent variables	Description	Odds Ratio	95% Confidence Interval		Percentage point change between maximum and minimum values
natidwel	National Identity - Welsh	0.964	0.769	1.207	-0.47%
dvagegrp3	Derived variable - Age group 3	0.965	0.854	1.092	-1.77%
dvethnicity	Derived variable - Ethnicity (White or non-white)	0.494	0.216	1.129	-7.00%
dvhiqual2	Highest educational qualification	1.143	1.058	1.236	6.72%
rel	Religion	0.830	0.650	1.059	-2.42%
urbrurdum	Urban-Rural classification	1.337	1.050	1.701	3.85%
working	In paid or unpaid work	0.701	0.545	0.903	-4.40%
finbilcred	Finance - ability to keep up with bills and credit commitments at present	0.922	0.821	1.036	-4.39%
gender	Gender	0.800	0.639	1.002	-2.78%
lasafe8	Local area - safety traveling by public transport after dark	1.328	1.187	1.487	11.46%
genhealth	Health in general	1.319	1.185	1.469	15.61%
wbhapyest	Well-being - overall happiness yesterday (0-10 scale)	0.947	0.905	0.991	-7.54%
caruse	Use of a car for activities such as visiting local shops or going to the doctor	0.332	0.259	0.426	-16.96%
_cons	Intercept	0.261	0.100	0.680	
Model fit:	*Pseudo R squared*	*0.090*			
Base:		*5027*			
	Effect not statistically significant				

Tables A.16: Logistic regression results: perceived difficulty of getting to the Hospital (categorical)

Independent variables	Description	Odds Ratio	95% Confidence Interval		Percentage point change between maximum and minimum values
natidwel	National Identity - Welsh	0.969	0.775	1.212	-0.39%
dvagegrp3	Derived variable - Age group 3	0.961	0.848	1.089	-2.01%
dvethnicity	Derived variable - Ethnicity (White or non-white)	0.497	0.216	1.140	-6.95%
_Idvhiqual2_1	Below NQF level 2	1.201	0.826	1.744	2.02%
_Idvhiqual2_2	NQF level 2	1.175	0.872	1.584	1.77%
_Idvhiqual2_3	NQF level 3	1.688	1.166	2.443	6.57%
_Idvhiqual2_4	NQF levels 4-8	1.674	1.210	2.315	6.45%
rel	Religion	0.830	0.651	1.059	-2.42%
urbrurdum	Urban-Rural classification	1.341	1.054	1.708	3.90%
working	In paid or unpaid work	0.698	0.542	0.898	-4.46%
finbilcred	Finance - ability to keep up with bills and credit commitments at present	0.923	0.823	1.036	-4.35%
gender	Gender	0.803	0.641	1.006	-2.74%
lasafe8	Local area - safety traveling by public transport after dark	1.327	1.186	1.485	11.40%
genhealth	Health in general	1.318	1.183	1.469	15.56%
wbhapyest	Well-being - overall happiness yesterday (0-10 scale)	0.947	0.905	0.991	-7.57%
caruse	Use of a car for activities such as visiting local shops or going to the doctor	0.333	0.260	0.428	-16.88%
_cons	Intercept	0.266	0.102	0.694	
Model fit:	*Pseudo R squared*	*0.091*			
Base:		*5027*			
	Effect not statistically significant				

Table A.17: Multilevel models predicting the difficulty of getting to the Hospital, by Health Board

Independent variables	Description	Model 1 Random effects ANOVA	Model 2 Random intercept model
_cons	Intercept	1.69	1.68
dvhiqual2	Highest educational qualification		0.03
urbrurdum	Urban-Rural classification		0.08
working	In paid or unpaid work		-0.10
lasafe8	Local area - safety traveling by public transport after dark		0.11
genhealth	Health in general		0.09
wbhapyest	Well-being - overall happiness yesterday (0-10 scale)		-0.03
caruse	Use of a car for activities such as visiting local shops or going to the doctor		-0.47
Between HB variance of mean		0.007	0.003
Within HB, between responded variance of the mean		0.697	0.634
Base:		*6457*	*5160*
	Effect not statistically significant		

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