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Protecting and improving the nation's health

National Dental Epidemiology Programme for England

Oral health survey of adults attending general dental practices 2018

A report on the oral health and service use of adults attending general dental practices

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Published June 2020
PHE publications
gateway number: GW-1322

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Executive summary

This report details findings of the National Dental Epidemiology Programme 2017/18 oral health survey of adults attending general dental practices in England. It provides data to inform joint strategic needs assessments and oral health needs assessments to plan and commission oral health improvement interventions and services for adults.

Adults attending general dental practices for any reason, aged 16 years and over, were recruited to take part in the survey. The survey consisted of a questionnaire on the impact of oral problems on individuals, use of dental services and barriers to receipt of care and a brief clinical examination conducted by trained local epidemiology teams under standardised conditions.

Questionnaire and clinical examination data was collected from 16,572 (65% of those approached) and 14,270 (56%) participants respectively. This involved 1,173 dental practices of which 25% were NHS practices, 10% were wholly private and 65% were mixed NHS and private practices. One hundred and seven of the 152 upper-tier and 212 of the 326 lower-tier local authorities across England took part in the survey. Despite the survey being restricted to dental attendees, the demographics of participants were broadly similar to the general population of England although men and people aged under 45 years or over 84-years were under represented.

The survey found that only 1% of adult dental attendees in England had none of their own teeth, 15% wore dentures and 10% had bridges or implants replacing missing teeth. Most participants (82%) had ‘functional dentitions’ (comprising 21 or more natural teeth), nearly all participants (90%) had at least one filling and around half (47%) had crowned teeth. Most (71%) were assessed as having a current need for dental treatment. While most participants surveyed (84%) reported that it had been 12 months or less since their last dental visit it should be noted that participants with no natural teeth may be underrepresented in this survey due to less frequent visits to the dentist.

More than a quarter of participants (27%) had tooth decay, having on average 2.1 decayed teeth, and more than half (53%) had gingival (gum) bleeding. Furthermore 18% reported currently being in pain and the same number had experienced one or more impacts of poor oral health ‘fairly’ or ‘very often’ in the previous year.

Poorer oral health disproportionately affected those at the older end of the age spectrum and those from more deprived areas. Around two-thirds of participants aged 85-years and older did not have a functional dentition. One in 3 participants living in the more deprived areas of England had untreated tooth decay compared to 1 in 5 in the less deprived areas. Reports of impacts from oral problems in the last year in

participants living in more deprived areas were almost triple those of participants living in less deprived areas (28% versus 11%).

Overall, this survey of dental attendees in England paints a picture of a population where virtually all adults have at least some natural teeth but where impacts and signs of dental disease are prevalent. The survey highlights that the effects of poorer oral health disproportionately affect some parts of this population, most notably older people and those living in the more deprived areas of England.

What is not known from this survey is if this picture of complex oral health needs in adult dental attendees is markedly different from the general population. Participants in this survey could have better oral health than the general public, as for the most part these were people reporting to be regular dental attendees with the benefit of professional support for maintaining their oral health. On the other hand, these were people surveyed when attending a dental appointment where the prevalence of a dental problem could be higher as they were seeking professional care. Contemporary information about whether people go to the dentist for check-ups or only when there is a problem is lacking, but there were suggestions in the last decennial survey of adult oral health of an increasing pattern of seeking care only when there was a dental problem. This survey may also underrepresent a proportion of the general public for whom attending the dentist is unaffordable. Data is needed on the wider population to see if the findings from this survey hold true across the whole adult population in England. Caution should therefore be taken when using the data to inform need for future dental services and workforce planning for the general population.

Full tables of results are available at www.gov.uk/government/collections/oral-health

1. Introduction

Public Health England (PHE) has a responsibility for coordinating oral health surveys in England as part of the National Dental Epidemiology Programme. This annual programme supports local authorities' responsibility to monitor the health of their populations. Five-year-old schoolchildren are surveyed every other year to inform the Public Health Outcomes Framework indicator on tooth decay levels. In the intervening years, different population groups are surveyed to meet public health information needs. The 2018 survey population was adults attending general dental practices.

Local authority and NHS commissioners and other health planners can use the information produced from the National Dental Epidemiological Programme when conducting oral health needs assessments.

1.1 Purpose of the survey

There is a paucity of information on the oral health needs of adults, particularly at local authority area level. This is required to inform local assessments of oral health needs, which are used to plan and commission locally appropriate oral health improvement interventions and services for adults. This information gap cannot currently be met through use of dental service activity data as this is based on NHS dental practice claims for the provision of courses of dental treatment. To fill this gap, adults were selected as the survey population for the 2017/18 oral health survey. There are considerable challenges to the collection of useful data from a representative sample of adults, hence the adoption of a novel, pragmatic method to try and meet this need.

2. Methods

A planning group was established to support the development of the survey methods. Members of the planning group included consultants in dental public health, representatives from NHS England, the British Dental Association, the Local Government Association, Faculties of Dental Surgery and General Dental Practice, Office of Chief Dental Officer, dental service providers and academic partners. Local authorities as commissioners of the survey fieldwork were consulted to determine their priorities for the content of the survey. The methods were based on those used in other National Dental Epidemiology Programme surveys[1, 2] and consisted of a self-completed questionnaire and brief clinical examination.

As most of the adult population accesses a dentist over a period of several years[3], a pragmatic decision was taken to survey adults attending general dental practices. This approach meant that there was a method of contacting adults and requesting their participation in the survey and that a suitable environment was available to undertake the clinical examination.

The method is detailed in the protocol for the survey, which also includes the questionnaire and clinical data collection form[4]. A process evaluation of the method has been published separately by PHE[5].

2.1 Survey population and sampling

The survey population was adults aged 16 years and older attending NHS, private or mixed NHS and private general dental practices in England who could give valid consent to take part. The primary sampling unit was lower-tier local authority areas.

A list of all dental practices by local authority area for England was compiled. Practices were ordered by size of contracted or estimated activity levels, as a proxy measure for the number of patients seen by the practice. Wholly private practices were assumed to have similar levels of activity as single-handed NHS practices (those with one dentist). Practices were then contacted in order of size of activity to seek their agreement to be a site for the survey. Practices with the highest levels of activity were contacted first.

This approach was used as single-handed practices and practices with lower activity levels were considered less suitable for the survey as they would be less likely to have a free surgery available for the survey and the numbers of adults attending on any day would have been lower. Practices known to provide only specialist dental services were removed from the sampling list.

2.2 Data collection

Data collection was undertaken by dental epidemiology fieldwork teams who had been commissioned by local authorities or by NHS England on their behalf. These teams, who were generally employed by NHS trusts providing community dental services, had been trained to undertake the survey and followed standardised procedures.

The fieldwork teams attended dental practices that had agreed to be survey sites to undertake the data collection. Adults attending the practice for examination or treatment on the day that the fieldwork teams were on site were asked to participate in the survey. Written consent was sought from all who agreed to participate.

The survey consisted of a questionnaire and a brief clinical examination.

2.3 Questionnaire

The survey questionnaire was developed following a consultation exercise with local authorities and considered the data needs of commissioners. The questionnaire also included validated questions from the 2009 Adult Dental Health Survey[6]. The topics included oral health impacts, that is how oral problems had affected survey participants over the previous year, oral health behaviours including dental attendance and previous dental service experiences.

2.4 Clinical examination

The clinical examinations took place in one of the host practices' surgeries that was not in use on the day of the survey. A visual-only examination technique was used, and no radiographs were taken. Teeth were dried using cotton wool rolls and illuminated via a surgery's overhead light. No clinical records were available to the fieldwork team.

The clinical examination included a range of measures. These related to the presence and condition of natural and artificial teeth, function (in terms of number of teeth and number of top and bottom posterior teeth in contact) and gingival (gum) condition. Criteria developed by the British Association for the Study of Community Dentistry were used to assess the presence of tooth decay[7]. The threshold was visually obvious decay into dentine. This threshold is widely used in surveys, but it provides an underestimate of the true prevalence and severity of disease as earlier stages of decay are not counted. The PUFA (pulpal involvement, ulceration, fistula and abscess) index was used to measure teeth with severe untreated tooth decay, which had completely broken down and were likely to be causing significant problems in need of early attention. Need for treatment was assessed, collated and reported as fitting within 1 of 3 NHS dental treatment bands. A band 1 course of treatment includes examination, preventative treatment and advice, scale and polish and radiographs. A band 2 course of treatment

includes fillings, tooth extractions (removal), root canal fillings and treatment of gum disease. A band 3 course of treatment includes dental crowns, bridges and dentures. The highest band was recorded for each participant based on an assessment of their treatment need. For example, if a participant was assessed as needing a filling and a denture, they would be recorded as needing a band 3 course of treatment. The degree of urgency of treatment need was also assessed. Examples of a need for urgent care included overt malignancy, lesions that arose suspicion of malignancy, uncontrolled swelling and uncontrolled bleeding.

2.5 Data processing

Data was entered directly into a tailor-made database in Microsoft Access. Following cleaning by the fieldwork teams, the data was shared securely with PHE. The data was collated, cleaned and analysed using Microsoft Excel and Access and linked to population statistics. These included the Index of Multiple Deprivation 2015[8]. Confidence limits were calculated, using the Wilson-Score method for prevalence, and were used to assess statistical significance.

3. Results

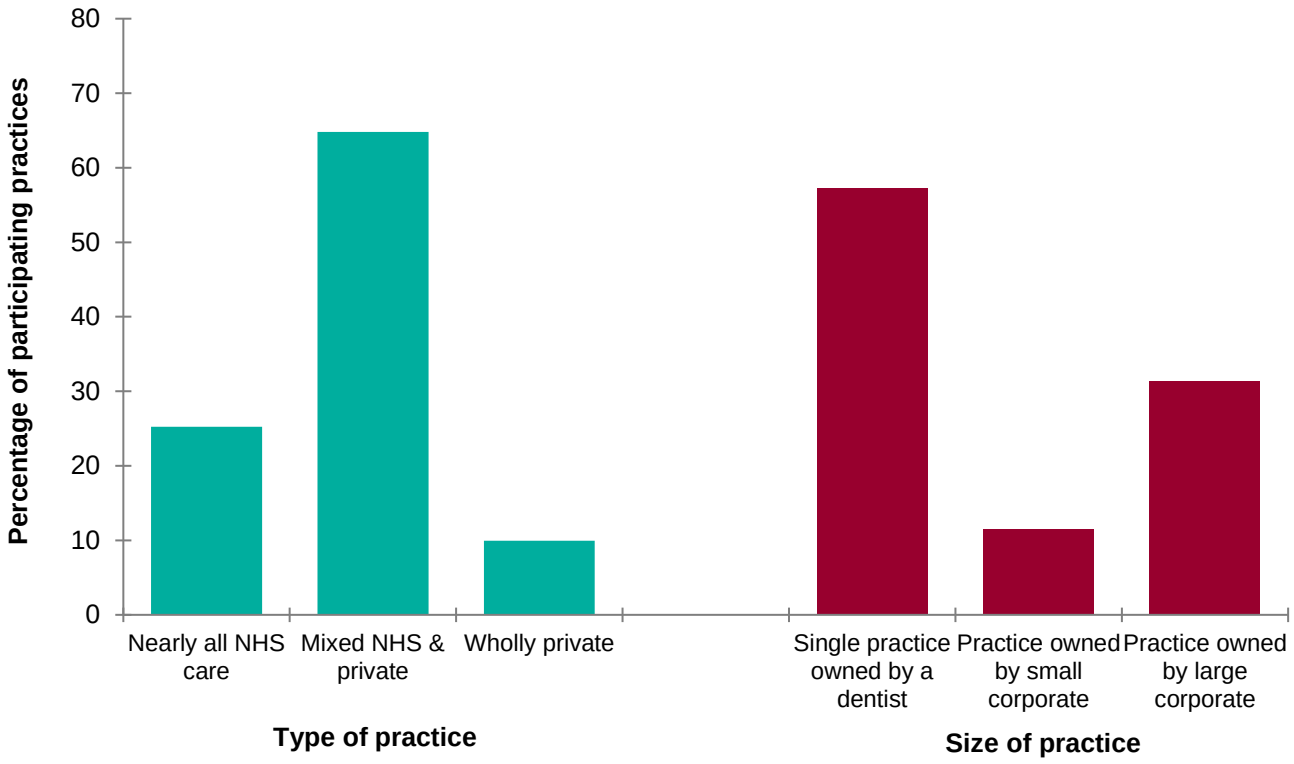
This section presents the headline national results from the clinical examination and questionnaire. Tables of results at national, government region and local authority level and for PHE centres are available from www.gov.uk/government/collections/oral-health.

3.1 Participation in the survey

In total, 117 out of 152 upper-tier local authorities commissioned fieldwork teams to undertake the survey covering 236 out of 326 lower-tier local authorities. In some areas, no dental practices agreed to host the survey and in other areas the survey was abandoned due to fieldwork staffing issues. This meant data was collected from 107 upper-tier and 212 lower-tier local authorities.

The survey took part in 1,173 dental practices. Most of the practices (64.8%) were mixed NHS and private and more than half (57.2%) were single handed practices (Figure 1).

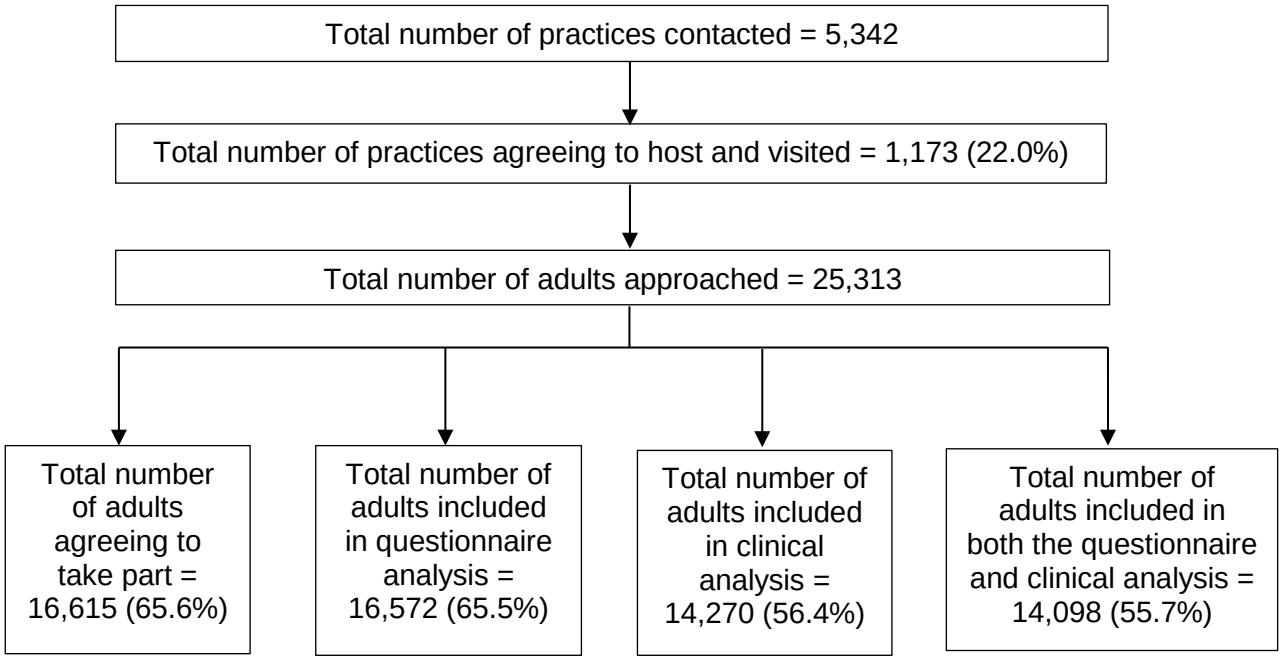
Figure 1: Percentage of host dental practices, by type and size



3.2 Response rate

The number of adults attending the host practices approached by the fieldwork teams to participate in the survey was 25,313. A total of 16,572 questionnaires and 14,270 clinical examinations were completed and included in the final analysis. Not everyone who completed the questionnaire had a clinical examination and not everyone who had a clinical examination completed the questionnaire. The response rate was 65.5% for the questionnaire and 56.4% for the clinical examination and 55.7% (n=14,098) completed both the questionnaire and the clinical examination (Figure 2). This varied from 34.5% in the East of England to 66.8% in the East Midlands.

Figure 2: Flow chart of responses

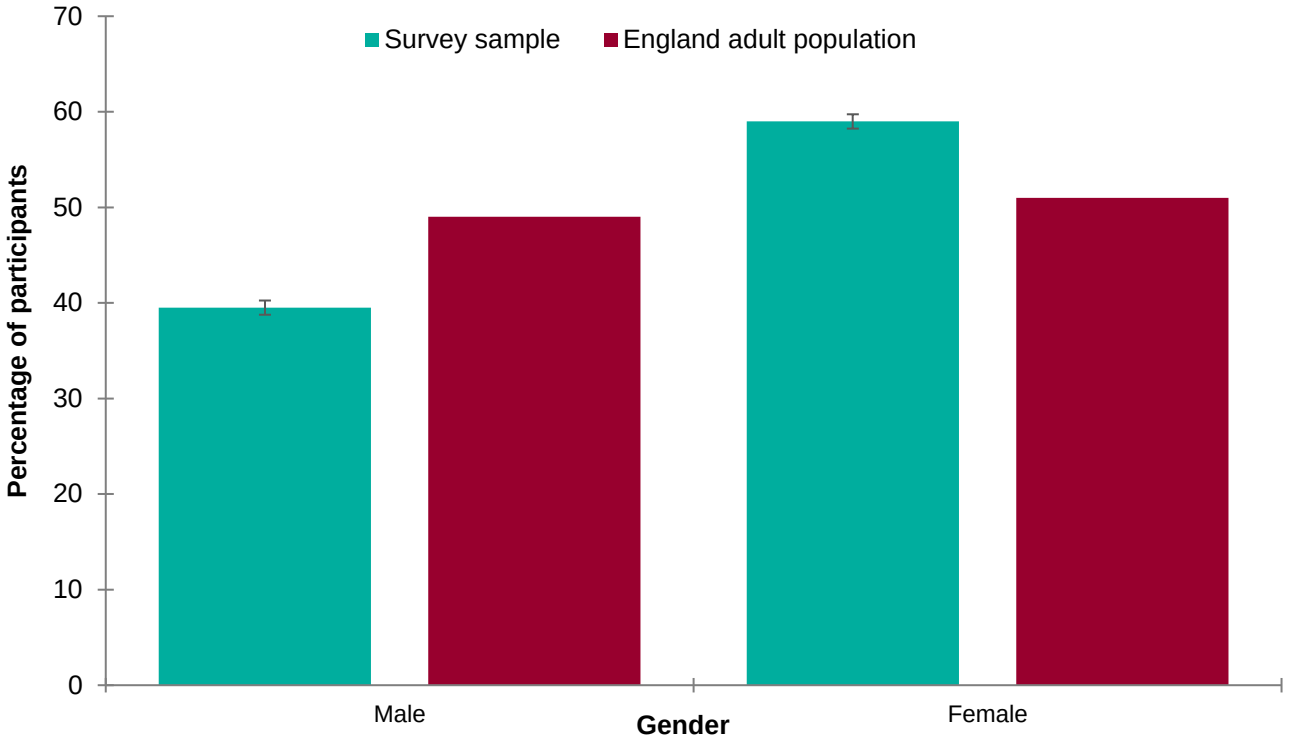


3.3 Description of sample

The demographics of the sample of adult dental attendees and of the adult population of England are described below.

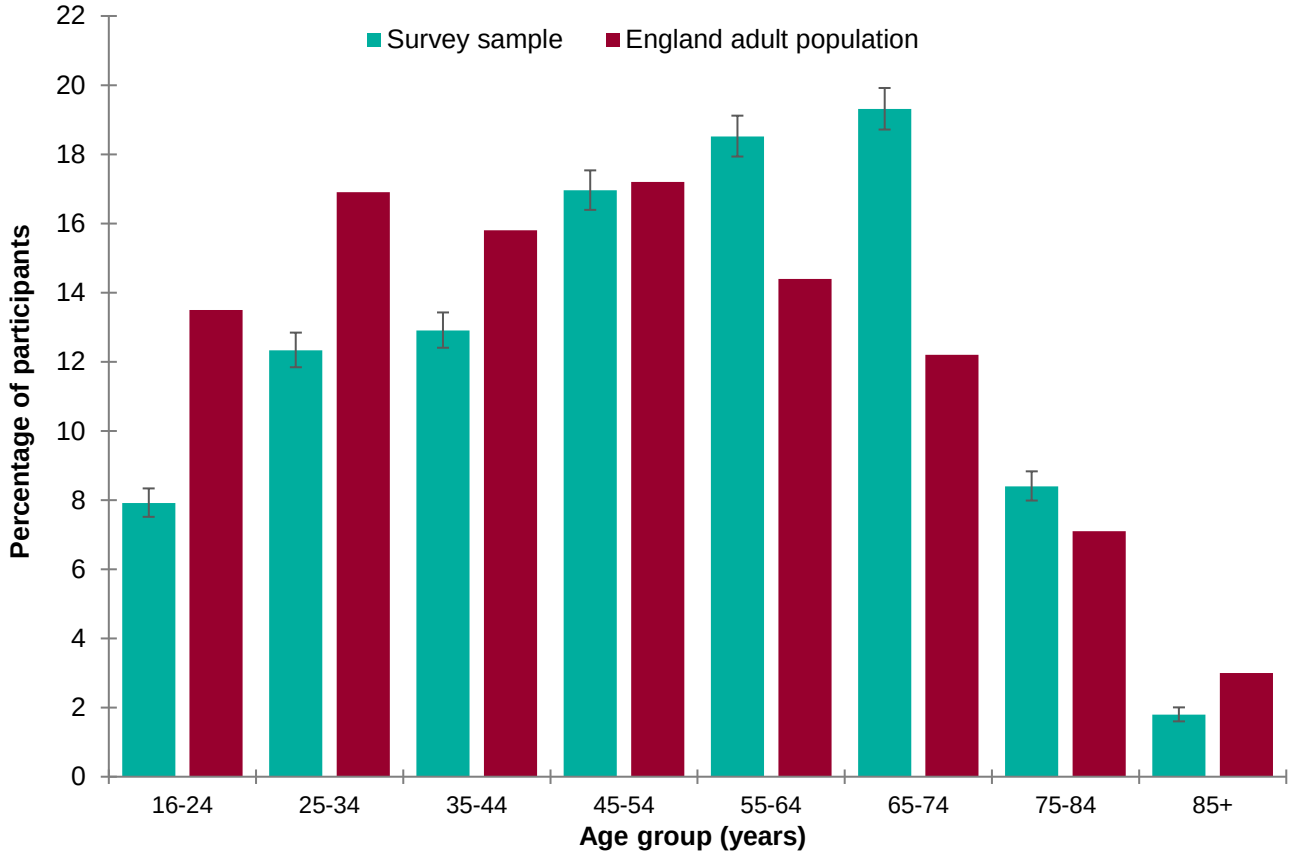
There was a greater proportion of women (59.3%) than men (39.7%) in the survey sample (Figure 3); 0.9% preferred not to state their gender.

Figure 3: Comparison of sample with England population by gender



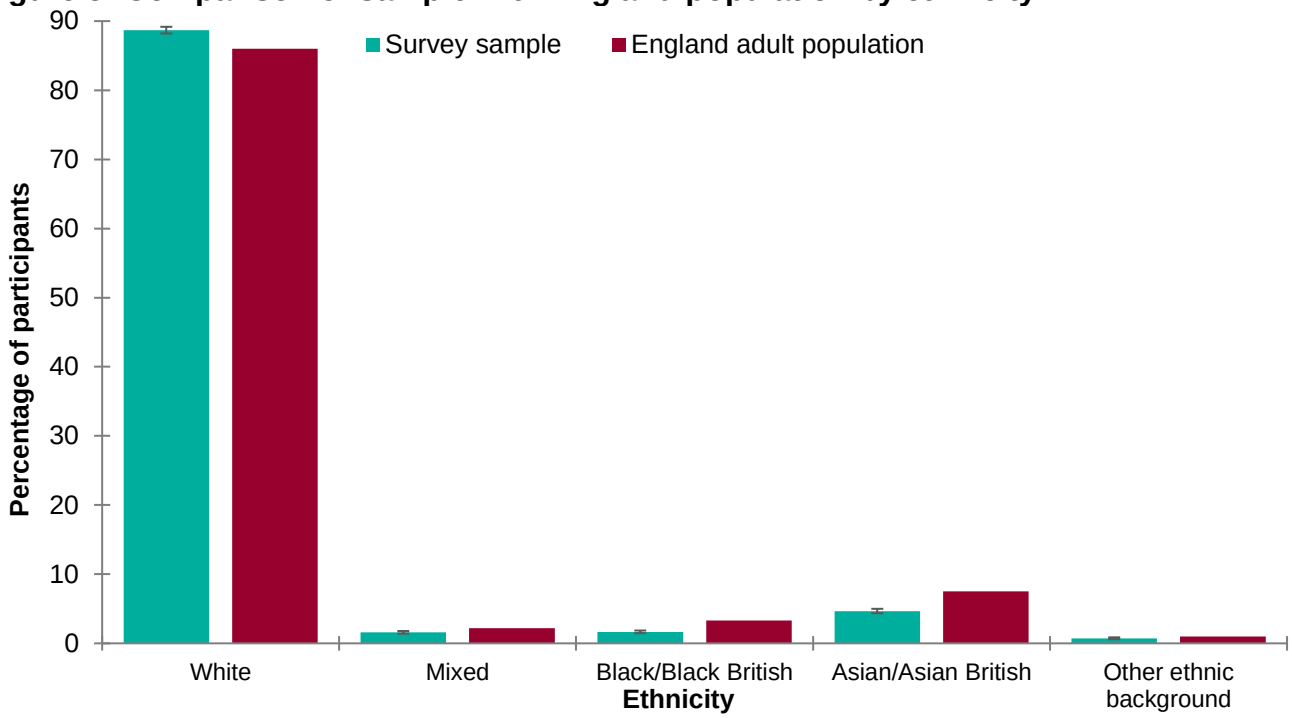
The sample appeared older than the general population (Figure 4).

Figure 4: Comparison of sample with England population by age group



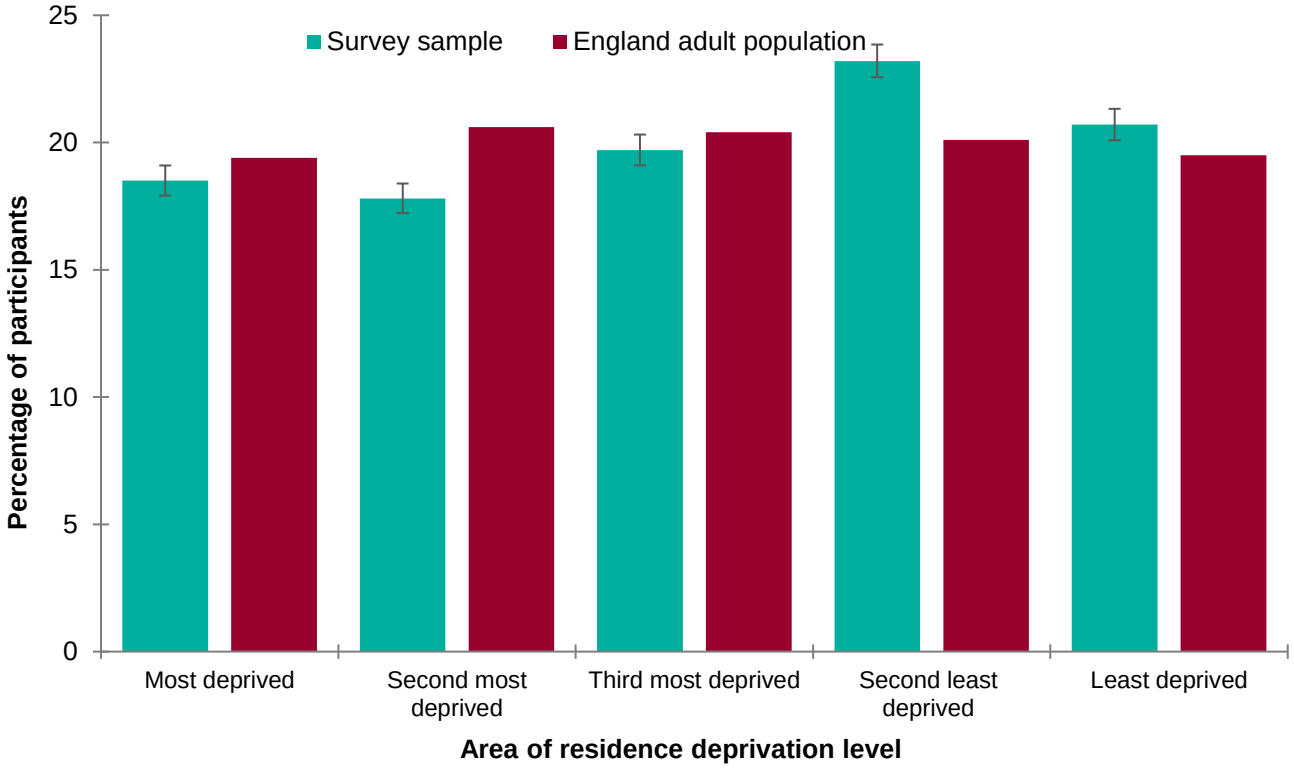
The White ethnic group was more strongly represented than other groups (Figure 5).

Figure 5: Comparison of sample with England population by ethnicity



There was some over representation of the second least deprived group and under representation of the most deprived groups (Figure 6).

Figure 6: Comparison of sample with England population by area of residence deprivation level



Most participants (83.6%) reported to have attended a dentist in the previous 12 months and 7.9% reported to have attended more than 2 years ago (Section 3.13 Table 4).

3.4 Number of teeth

3.4.1 Participants with no natural teeth

The proportion of participants with no natural teeth remaining was 1.1%. Perceived dental need is lower in people without any natural teeth[9] and they are less likely to attend a dental practice for routine check-ups[10] hence this figure is likely to be an underestimation. Participants who had not visited the dentist in the last 2 years or more were more likely to have no natural teeth (3.9%).

The proportion of the sample having no natural teeth increased with increasing age and participants aged 65 years and older were significantly more likely to have no natural teeth (Table 1).

Table 1: Percentage with no natural teeth by age group

Age group (years)	Participants with no natural teeth % (n)
16 to 24	0 (0)
25 to 34	0.1 (1)
35 to 44	0.3 (5)
45 to 54	0.7 (18)
55 to 64	0.5 (14)
65 to 74	1.3 (37)
75 to 84	4.4 (52)
85+	7.5 (19)

Men (1.1%) and women (1.0%) had similar levels of edentulousness (no natural teeth) and prevalence of edentulousness was low across all ethnic groups and by deprivation status (Tables 2 and 3).

Table 2: Percentage with no natural teeth by ethnic group

Ethnic group	Participants with no natural teeth % (n)
White	1.1 (137)
Mixed	0.9 (2)
Black/Black British	0.4 (1)
Asian/Asian British	0.7 (5)
Other ethnic background	0 (0)

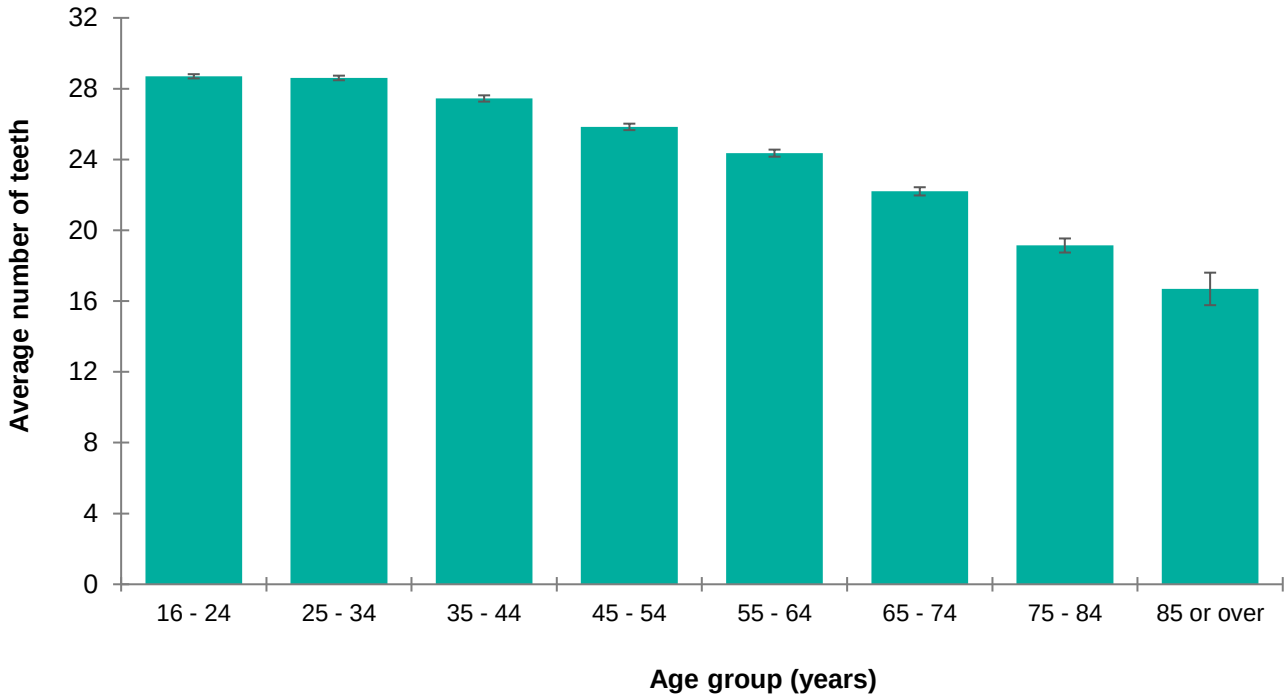
Table 3: Percentage with no natural teeth by level of deprivation

Level of deprivation	Participants with no natural teeth % (n)
Most deprived	1.8 (48)
Second most deprived	1.1 (29)
Third most deprived	1.0 (29)
Second least deprived	0.7 (23)
Least deprived	0.7 (21)

3.4.2 Participants with natural teeth

The average (mean) number of natural teeth among those having one or more natural teeth was 24.9. The average number of natural teeth reduced with increasing age (Figure 7).

Figure 7: Average number of teeth among participants with one or more natural teeth by age group

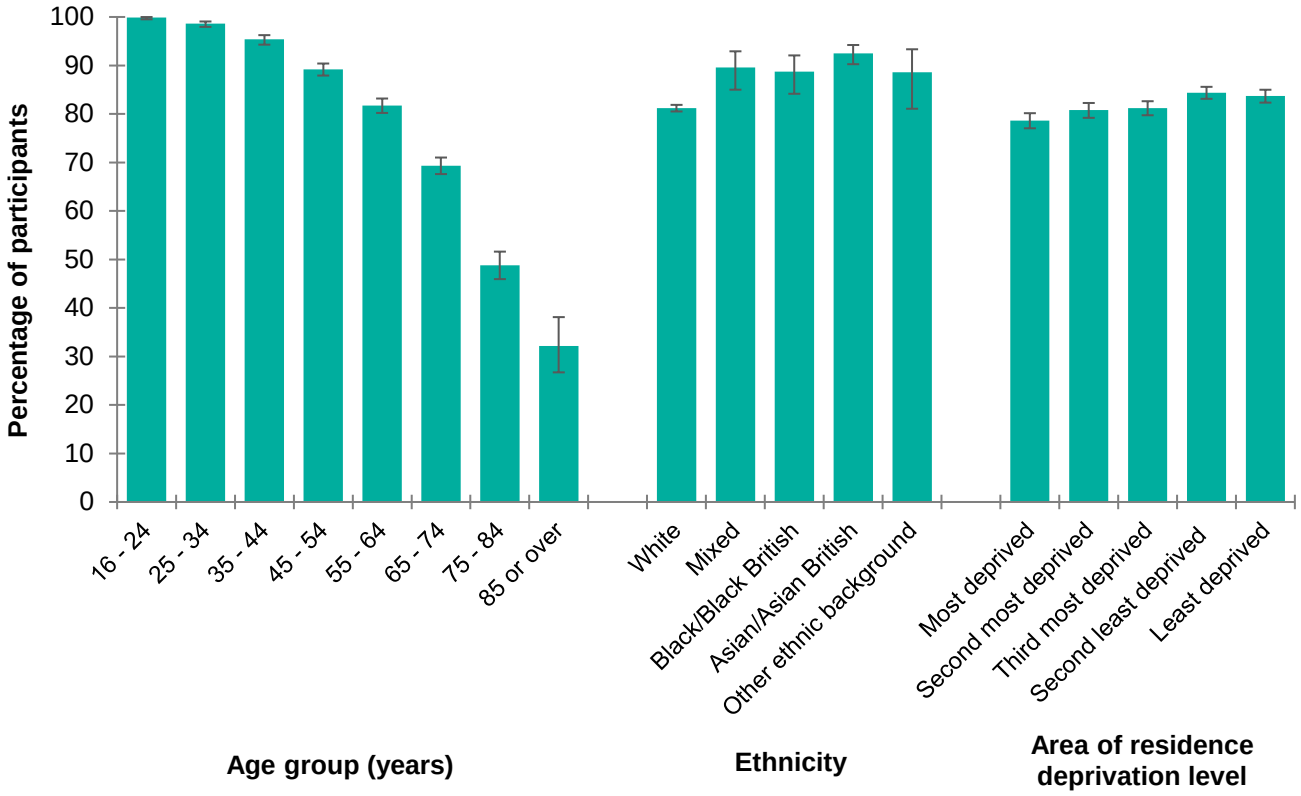


The average number of natural teeth was very similar regardless of gender, ethnicity or level of deprivation.

3.5 Function

The proportion of participants with a functional dentition, that is 21 or more natural teeth, was high at 81.9%. Similar proportions of men (80.3%) and women (83.4%) had functional dentitions. Having a functional dentition reduced with increasing age from 99.9% of 16 to 24-year-olds to 32.2% of those aged 85 years or older. There was little variation by ethnic group and area of residence deprivation level (Figure 8).

Figure 8: Percentage of participants with a functional dentition, by age group, ethnic group and level of deprivation



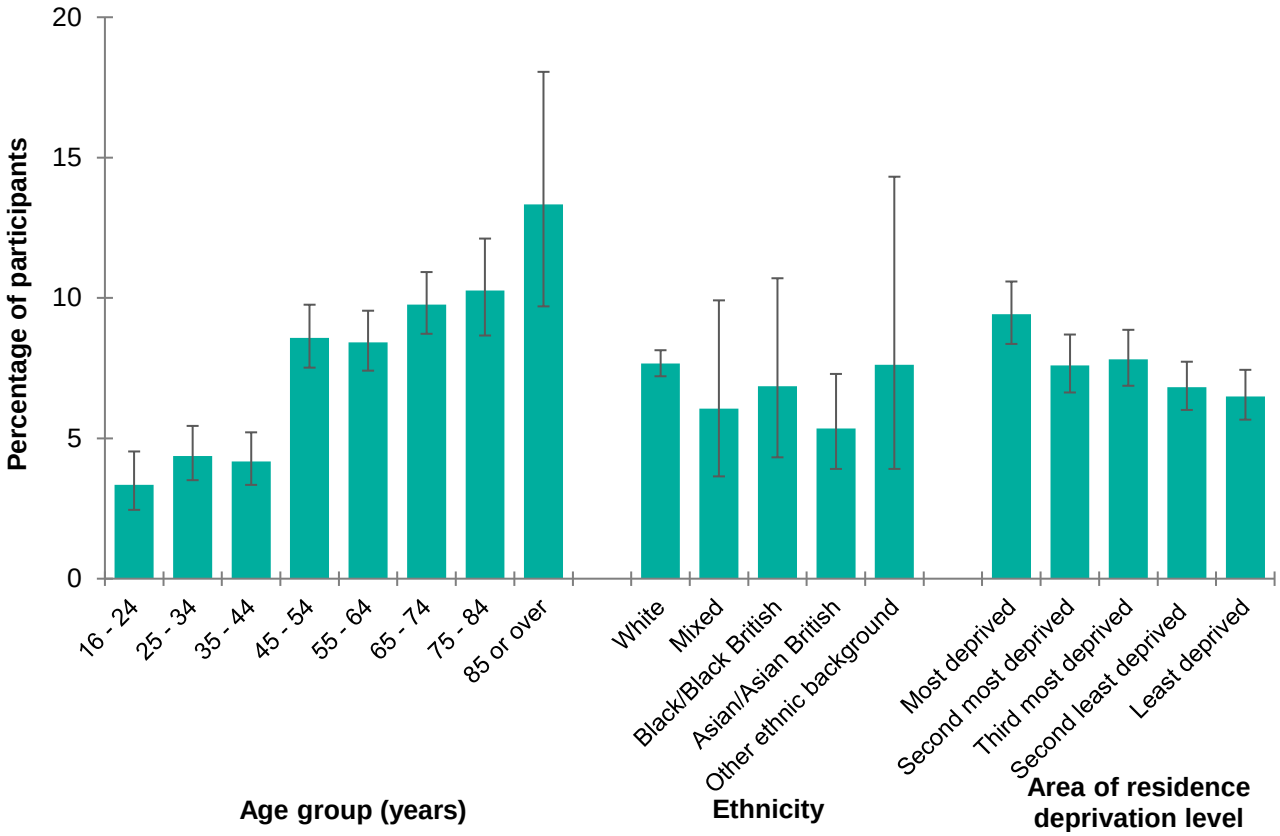
Only 2.9% of the overall sample had no posterior functional contacts, that is having no back teeth that contact each other (for chewing food), and 13.5% of people aged over 85 years had no posterior functional contacts.

3.6 Missing teeth

3.6.1 Missing anterior (front) teeth

Overall, 7.6% of participants had one or more missing upper anterior teeth with no replacements. More males (9.3%) than females (6.3%) had missing upper anterior teeth with no replacements. The proportion of people with missing upper anterior teeth without replacement varied by age, with people aged 45 years and older being more likely to have missing teeth. Participants living in the most deprived areas were also more likely to have missing upper anterior teeth with no replacements (9.4%) than participants living in the least deprived areas (6.5%) (Figure 9).

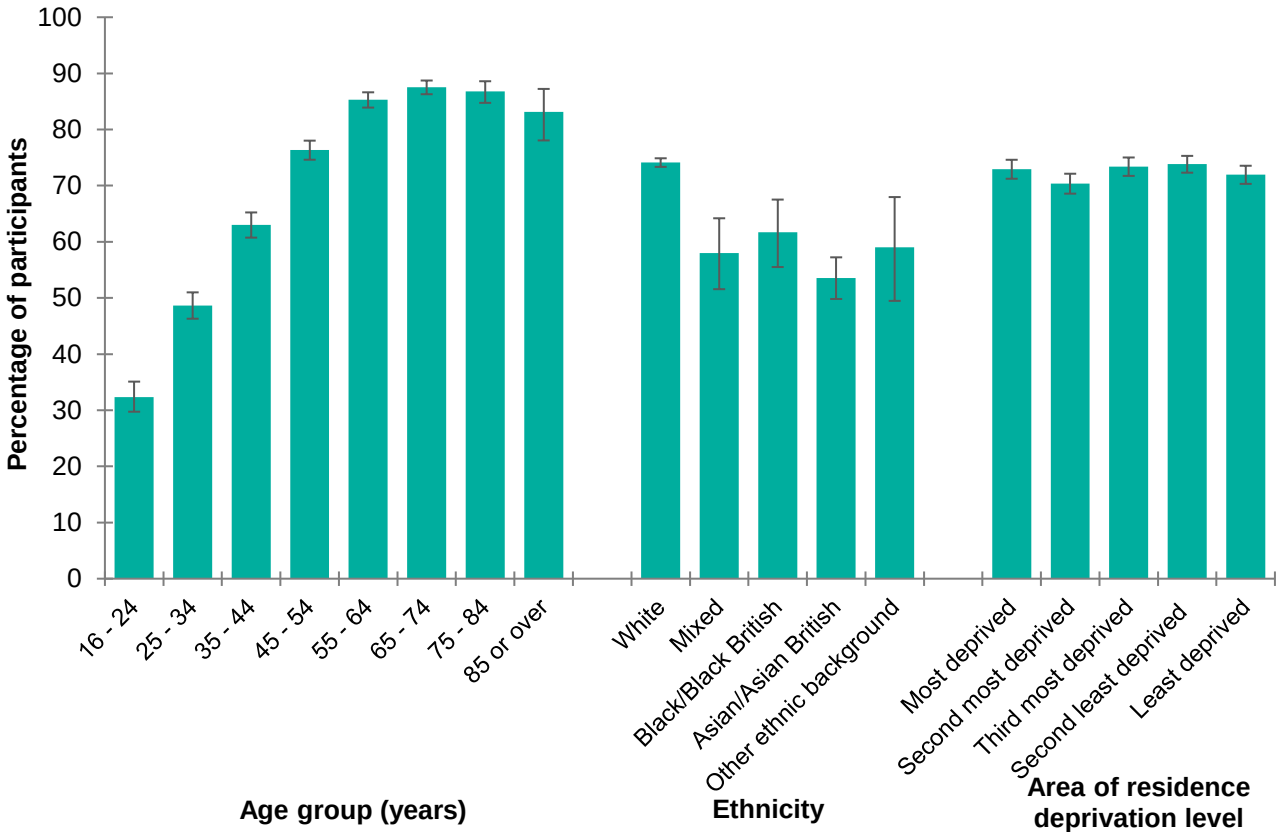
Figure 9: Percentage of participants with missing anterior teeth with no replacements, by age group, ethnic group and level of deprivation



3.6.2 Missing posterior (back) teeth

Seventy-three percent of participants had one or more missing posterior teeth, excluding third molar (wisdom) teeth, with no replacements. The proportion with one or more missing posterior teeth with no replacements varied by age, with people aged 55 years and older being more likely to have missing teeth. In terms of ethnicity, having one or more missing posterior teeth with no replacements was higher among the White ethnic group (74.1%) (Figure 10).

Figure 10: Percentage of participants with missing posterior teeth with no replacements, by age group, ethnic group and level of deprivation

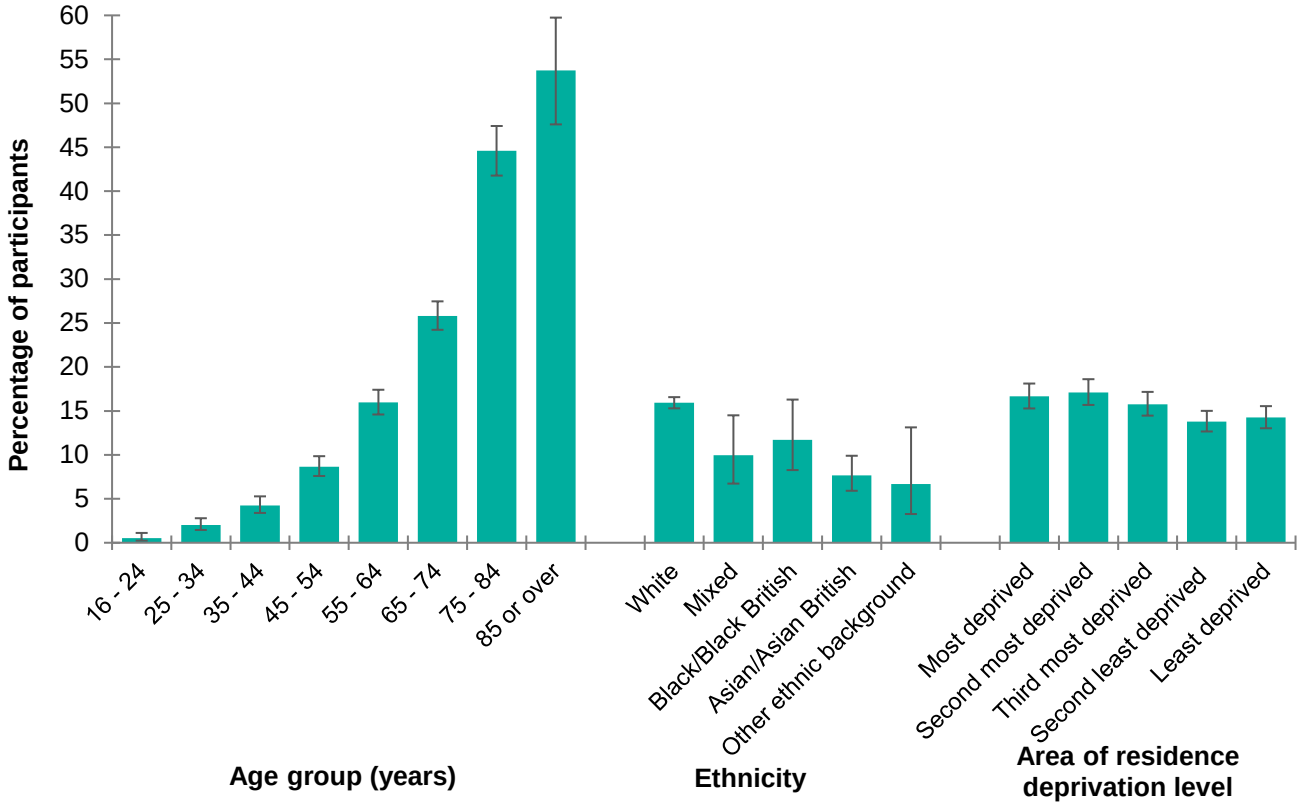


3.7 Replacement of missing teeth

3.7.1 Dentures

Fifteen per cent of participants wore partial or complete dentures. The likelihood of wearing a partial or complete denture increased with increasing age (Figure 11). Similar proportions of men (16.4%) and women (14.5%) wore dentures. There was little variation in the proportion of participants wearing a denture by ethnic group, level of deprivation and time since last dental attendance.

Figure 11: Percentage of participants with full or partial dentures, by age group, ethnic group and level of deprivation



Partial dentures were worn by 13.7% of participants. The percentage wearing partial dentures increased with increasing age. Similar proportions of men (14.6%) and women (12.9%) wore partial dentures. People from the White ethnic group were more likely to wear a partial denture (14.1%) than people from Mixed or Asian/Asian British ethnic groups. There was little variation by level of deprivation.

Of the participants who wore a partial denture, 18.1% needed their dentures repaired or replaced.

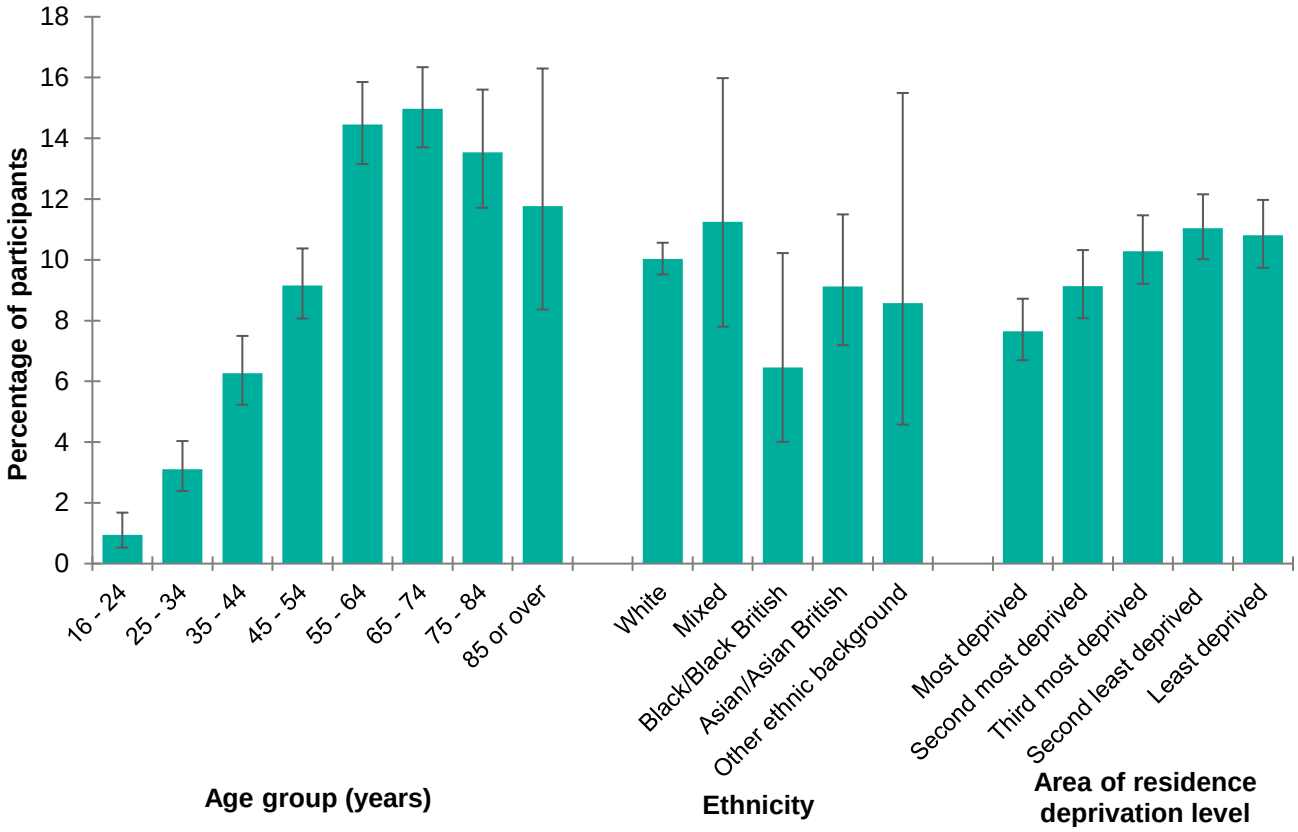
Only 0.9% of participants had both upper and lower full dentures and 3.2% had either a full upper or a full lower denture. Participants aged 65 years and older were more likely to have both upper and lower full dentures. There was little variation by level of deprivation.

Of the participants who wore full dentures, 17.5% needed their dentures repaired or replaced.

3.7.2 Fixed replacements

Fixed replacements of missing teeth (bridges or implants) were present in 9.9% of participants and were more likely in those aged 55 to 84-years-old. There was variation by deprivation and people living in the least deprived areas were more likely to have a fixed replacement (Figure 12). Participants who had attended a dentist within the last 2 years were more likely to have a fixed replacement (10.3%) than people who had attended 2 or more years ago (4.8%).

Figure 12: Percentage of participants with one or more fixed replacement teeth, by age group, ethnic group and level of deprivation



The average (mean) number of teeth replaced by fixed replacements was 2.1 and there was little variation by age group, gender, ethnicity or deprivation.

3.8 Tooth condition

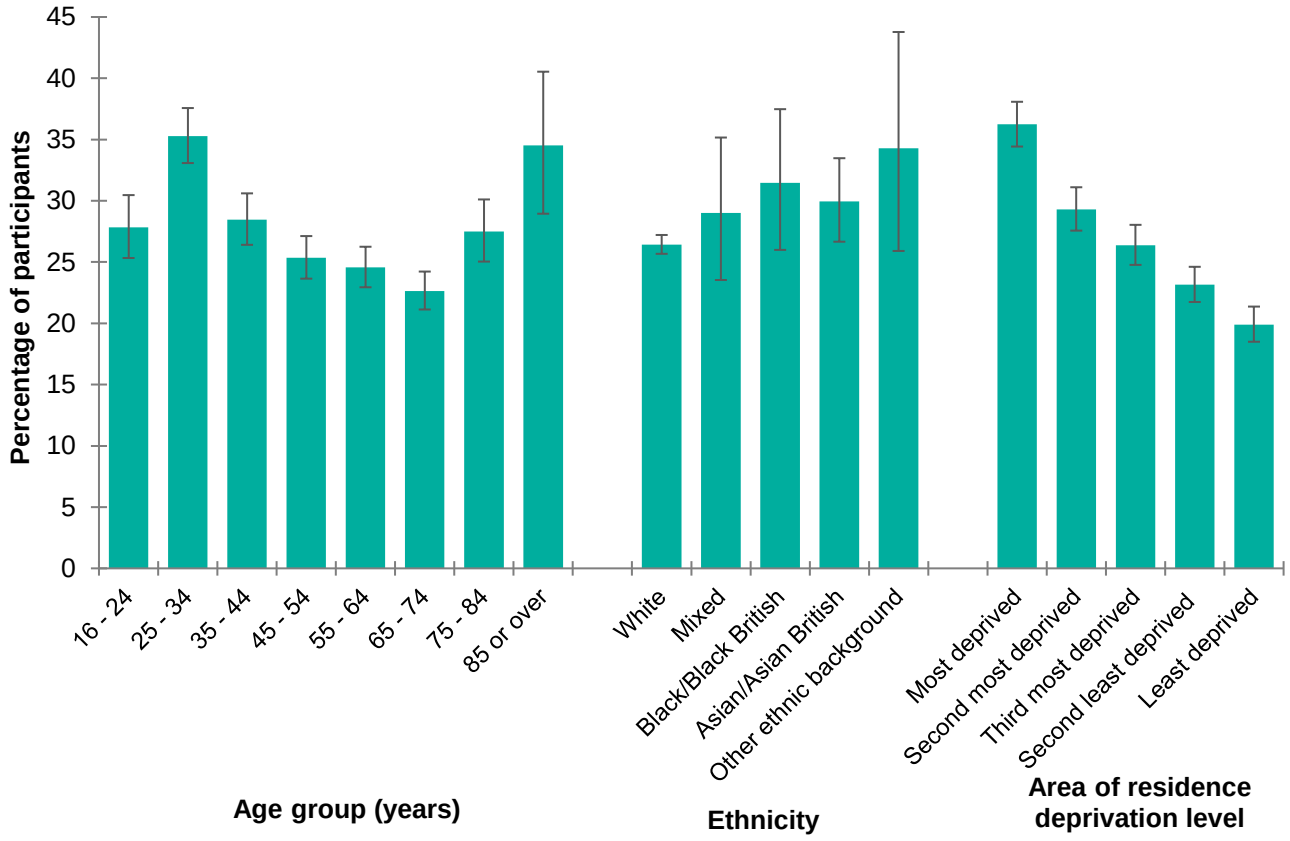
3.8.1 Untreated tooth decay

Twenty-seven per cent of participants had untreated tooth decay with each having on average 2.1 decayed teeth. More men (31.5%) had tooth decay than women (23.6%). Untreated tooth decay was more prevalent in participants aged 25 to 34 years (35.3%). Adults living in the most deprived areas (36.2%) were more likely to have untreated

tooth decay than adults living in the least deprived areas (19.9%). There was little variation by ethnic group (Figure 13).

Participants who had not attended a dentist for 2 years or more were more likely to have untreated tooth decay (48.8%).

Figure 13: Percentage of participants with one or more decayed and untreated teeth, by age group, ethnic group and level of deprivation



Severe tooth decay, that is tooth decay that has reached the tooth pulp, was found among 11.7% of participants and was higher in men (15.4%) than women (9.3%). It was less likely in participants aged 16 to 24-years (6.7%) and more likely in those aged 75 years and older (17.2%). There was little variation by ethnic group or deprivation status.

Severe tooth decay was more likely in participants who had last attended a dentist 2 or more years ago (23.7%) than in participants who had last attended a dentist less than 2 years ago (10.6%).

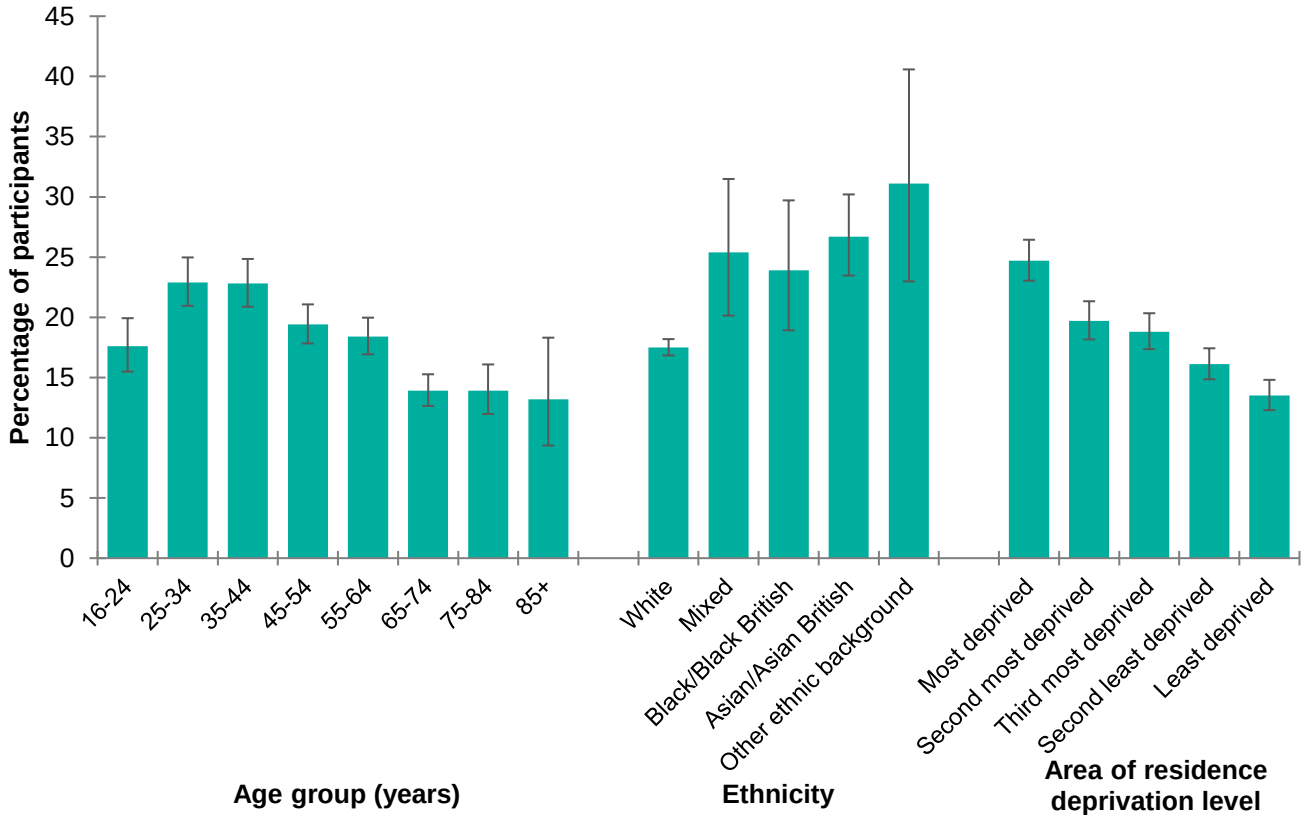
The proportions of participants with arrested (inactive) tooth decay was 6.1%.

3.8.2 Sequelae of tooth decay

3.8.2.1 Mouth pain

Participants with one or more natural teeth were asked if they had pain in their mouths at the time of the clinical examination and if they thought the pain was coming from their teeth. Current pain was reported by 18.3% of participants and 16.1% reported current pain that they thought was coming from their teeth. Similar proportions of men and women reported current pain. Participants aged 25 to 44 years were most likely to report current pain (22.9%). Participants living in the most deprived areas (24.7%) were more likely to report current pain than participants living in the least deprived areas (13.5%). Participants from White ethnic groups were less likely to report current pain (17.5%) than people from other ethnic groups (Figure 14).

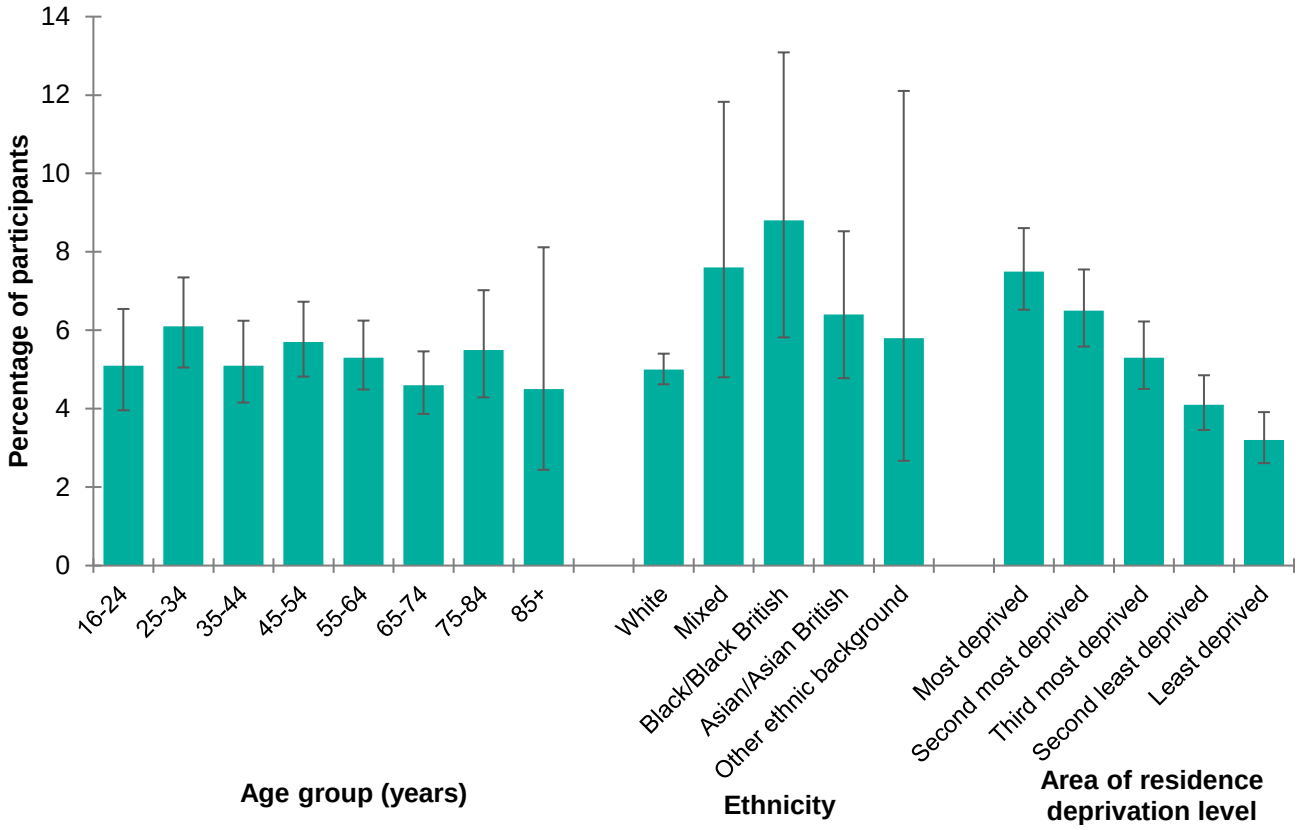
Figure 14: Percentage of participants reporting current mouth pain, by age group, ethnic group and level of deprivation



3.8.2.2 PUFA conditions

One or more PUFA conditions were present in 5.2% of dentate participants. PUFA conditions were more prevalent in men (6.2%) than women (4.6%) and there was little variation by age or ethnicity. Participants living in the most deprived areas (7.5%) were more likely to have one or more PUFA conditions than participants living in the least deprived areas (3.2%) (Figure 15).

Figure 15: Percentage of participants with one or more PUFA signs, by age group, ethnic group and level of deprivation



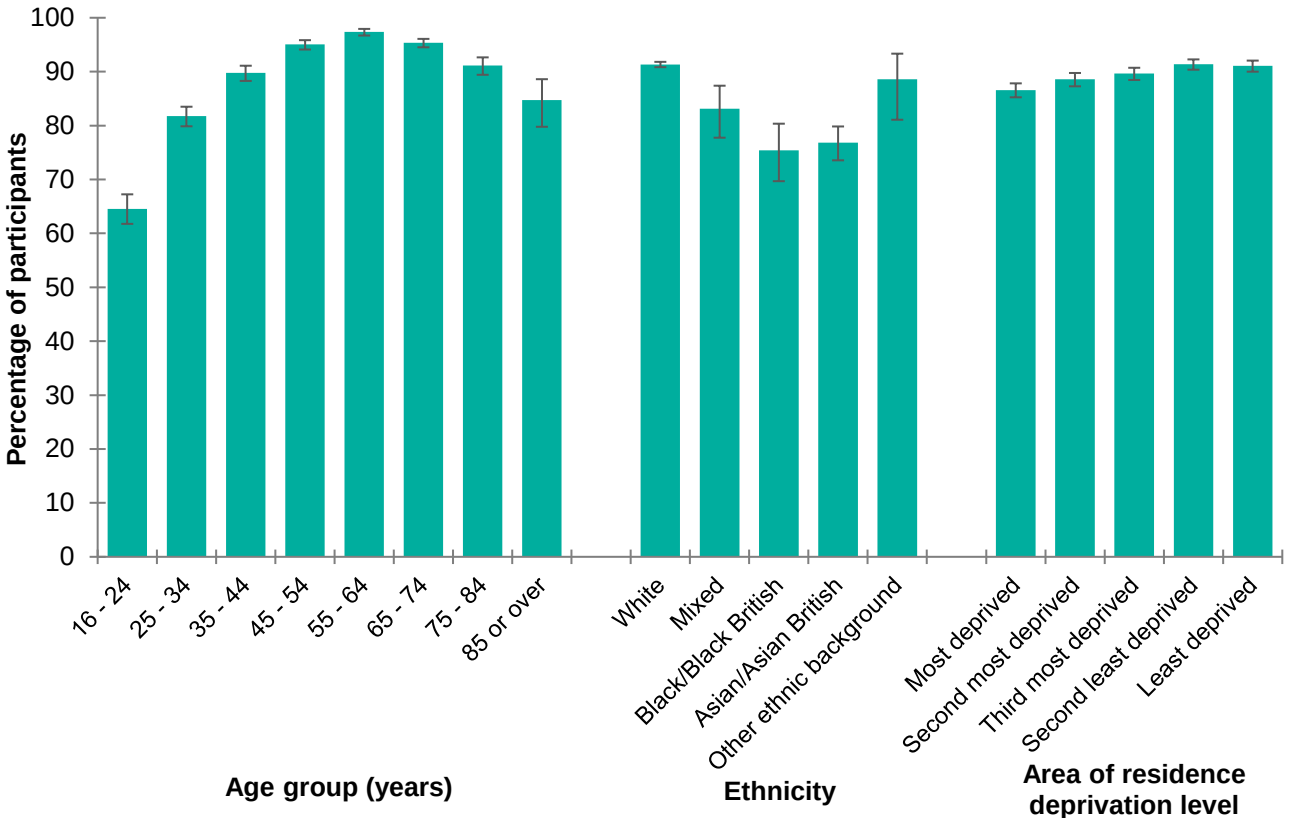
3.9 Dental restorations

3.9.1 Fillings

The proportion of participants with one or more fillings was 90.2% of whom each had on average 7.2 filled teeth. Similar proportions of men (90.4%) and women (90.0%) had one or more fillings. The proportions with fillings increased with increasing age up to age 55 to 64-years and then decreased with increasing age, indicating the loss of filled teeth over time. There was little variation by ethnic group. Participants from the least deprived areas were more likely to have at least one filling (91.1%) than participants from the most deprived areas (86.6%) (Figure 16).

As may be expected, participants who had attended a dentist less than 2 years ago were more likely to have had decayed teeth restored with one or more fillings (91.2%) than participants who had attended more than 2 years ago (78.3%).

Figure 16: Percentage of participants with one or more filled teeth, by age group, ethnic group and level of deprivation

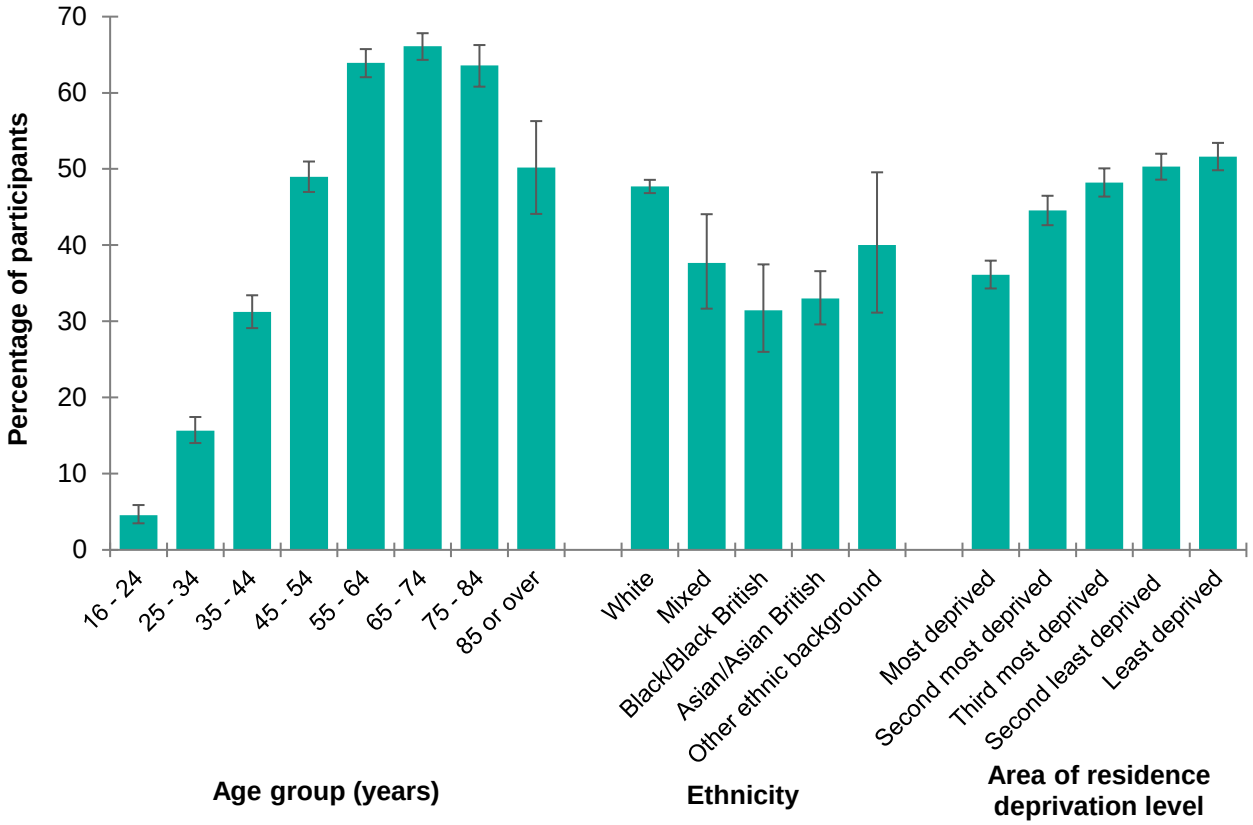


3.9.2 Crowns

The proportion of adults with one or more crowns was 46.5% and of those with a crown the average (mean) number of crowned teeth was 3.2. Similar proportions of men (45.7%) and women (46.9%) had one or more crowns. Variations by age and ethnicity mirrored those seen for fillings (Figure 17). Participants from the least deprived areas were more likely to have at least one crown (51.6%) than participants from the most deprived areas (36.1%).

Again, as expected, participants who had attended a dentist less than 2 years ago were more likely to have one or more crowns (48.4%) than participants who had attended 2 or more years ago (24.4%).

Figure 17: Percentage of participants with one or more crowned teeth, by age group, ethnic group and level of deprivation

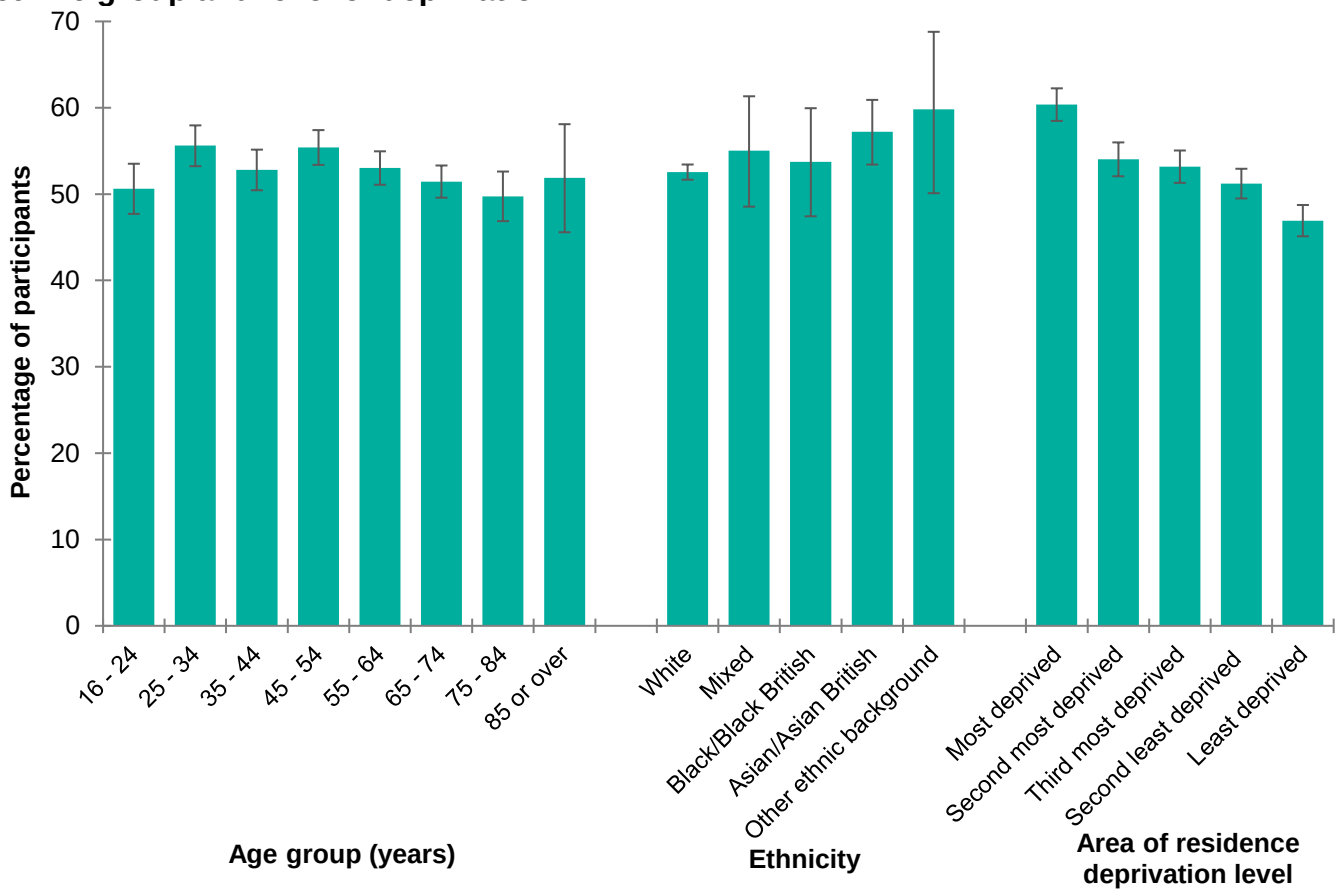


3.10 Periodontal (gum) health

Just over half of the participants had gingival (gum) bleeding on gentle probing (52.9%). More men (56.5%) than women (50.4%) had gingival bleeding. There was no clear pattern in gingival bleeding by age and little variation by ethnic group. Participants living in the most deprived areas of the country were more likely (60.4%) to have gingival bleeding than participants living in the least deprived areas of the country (46.9%) (Figure 18).

Participants who had last attended the dentist 2 or more years ago were more likely (60.9%) to have gingival bleeding than participants who had last attended less than 2 years ago (52.1%).

Figure 18: Percentage of participants with gingival bleeding on probing, by age group, ethnic group and level of deprivation

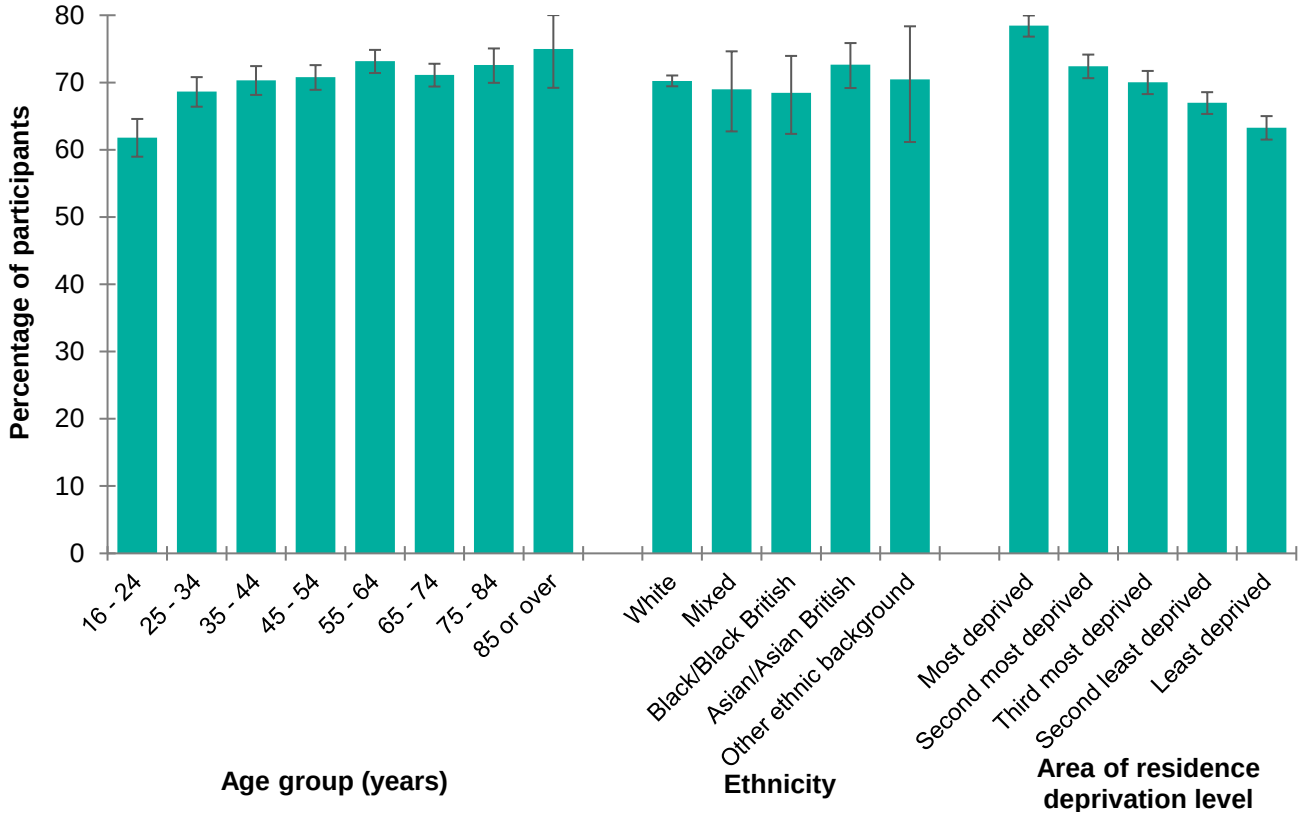


3.11 Treatment need

Over two-thirds of the participants (70.5%) were assessed as having a treatment need. More men (75.1%) than women (67.2%) had a need for treatment. Participants aged 16 to 24-year-olds were less likely to have a treatment need than older participants. There was little variation across different ethnic groups and a social gradient with 78.4% of participants living in the most deprived areas needing treatment and 63.3% of participants living in the least deprived areas needing treatment (Figure 19).

Participants who had last attended a dentist less than 2 years ago were less likely (69.3%) to need treatment than participants who had last attended 2 years or more ago (82.6%).

Figure 19: Percentage of participants with a treatment need, by age group, ethnic group and level of deprivation

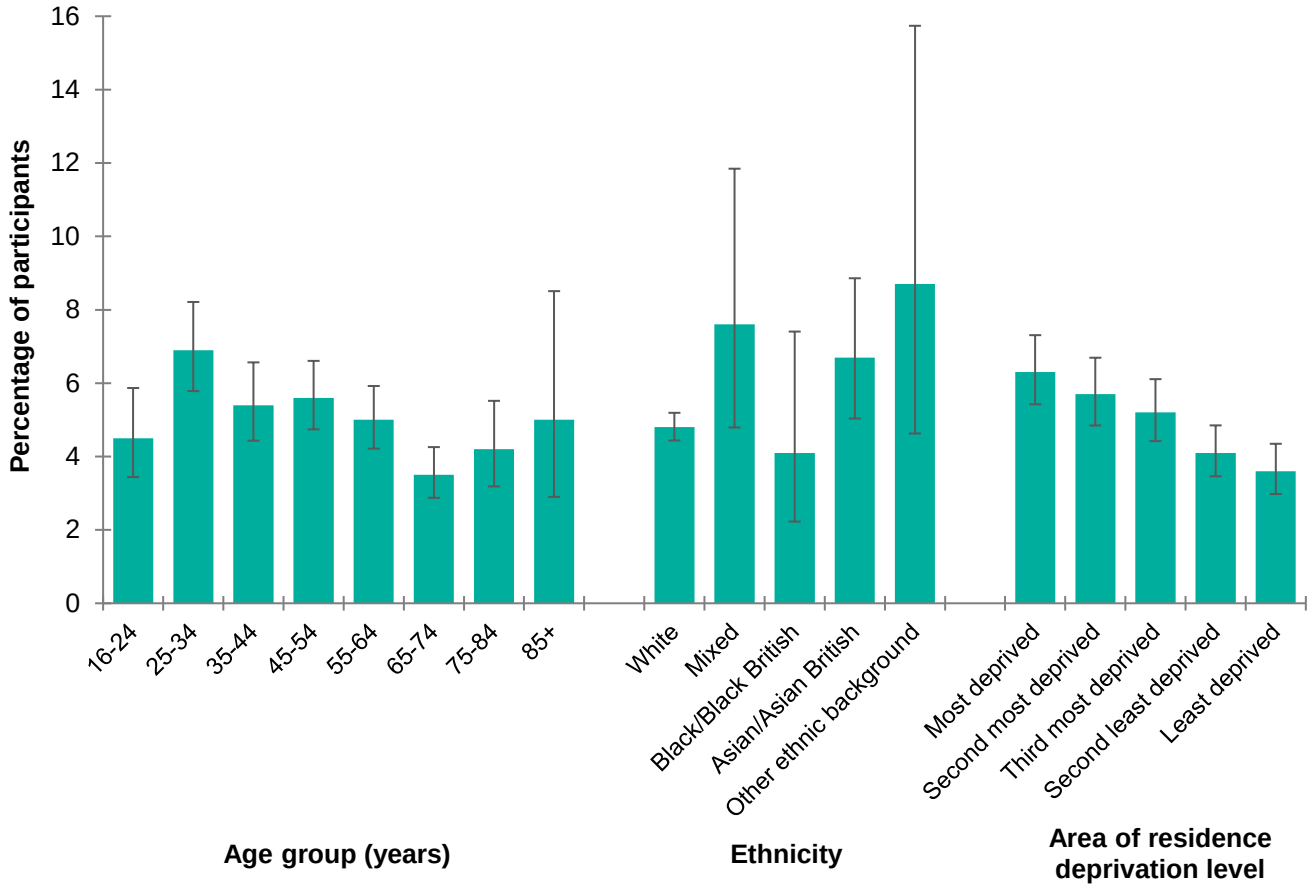


A band 1 course of treatment was indicated for 28.7% of participants, a band 2 course of treatment for 21.8% of participants and a band 3 for 13.5% of participants. The percentage needing a band 3 course of treatment may be an overestimation as this included denture relines, repairs and additions, which would not fall into a band 3 in the absence of other band 3 treatment needs.

The proportion of participants with an urgent treatment need was 4.9%. There was little variation by gender, age group or ethnic group. There was a social gradient with 6.3% of participants living in the most deprived areas having an urgent treatment need and 3.6% of participants living in the least deprived areas having an urgent treatment need (Figure 20).

Participants who had attended a dentist within the last 2 years were less likely (4.5%) to have an urgent treatment need than people who had last attended 2 years or more ago (10.5%).

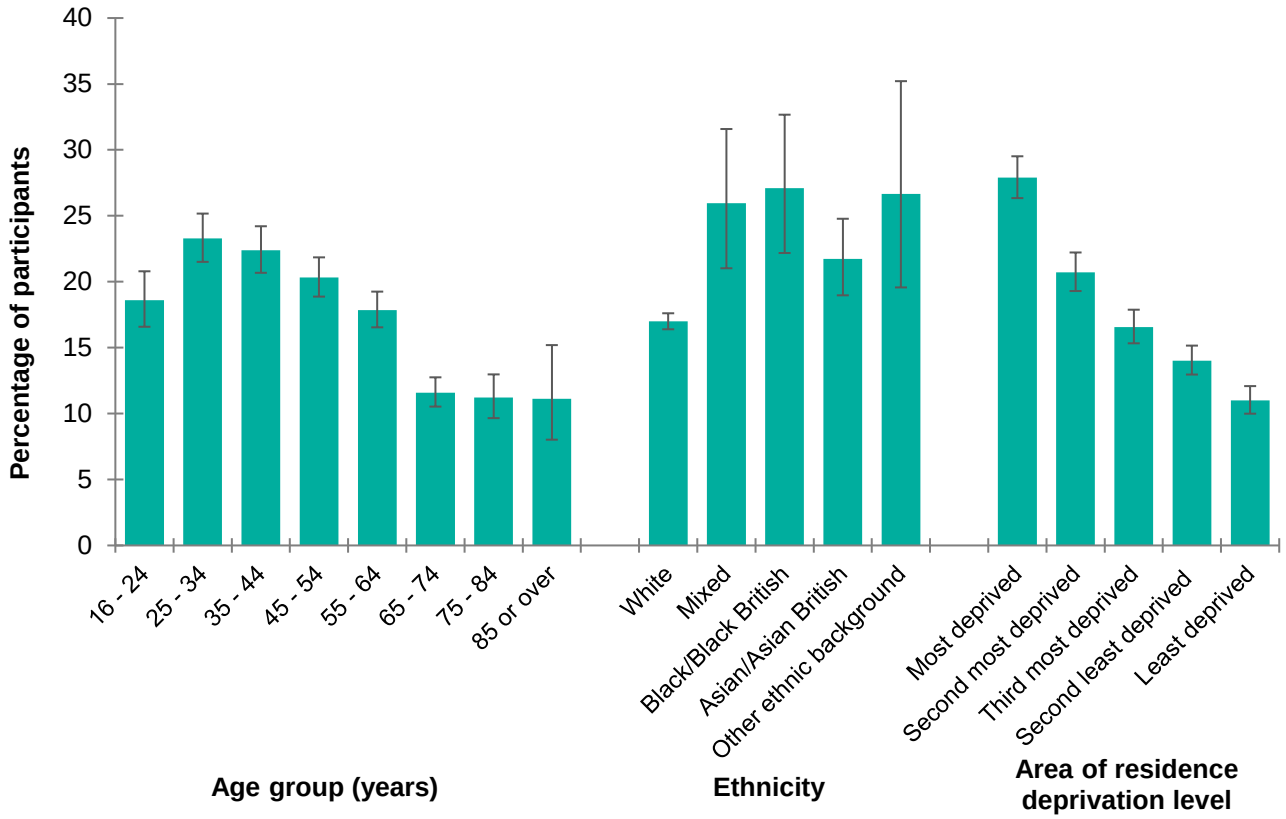
Figure 20: Percentage of participants with an urgent treatment need, by age group, ethnic group and level of deprivation



3.12 Oral health impacts in the previous year

Participants were asked about how oral problems had affected them over the previous year in terms of trouble pronouncing words, difficulty eating, causing embarrassment or self-consciousness and painful aching in the mouth. In total 17.7% had experienced one or more impacts fairly or very often in the previous year. Women (19.2%) were more likely than men (15.4%) to report impacts fairly or very often in the previous year. Impacts were reported more commonly by participants aged 64-years or younger. Participants from the White ethnic group were less likely to report impacts (17.0%). There was a social gradient in reported impacts with participants living in the most deprived areas more likely (27.9%) to report impacts than participants living in less deprived areas (11.0%) (Figure 21).

Figure 21: Percentage of participants reporting oral health impacts fairly or very often in the previous year, by age group, ethnic group and level of deprivation



The most commonly reported impact was self-consciousness or embarrassment because of problems with teeth, mouths or dentures, which was reported by 11.4% of participants, followed by difficulty eating any foods (7.2%) and painful aching in the mouth (6.2%).

3.13 Dental attendance

The majority of participants reported to have attended a dentist in the previous 12 months (83.6%; n=13,730) and less than 1.0% (n=152) reported to have attended more than 10 years ago (Table 4).

Table 4: Reported time since last dental attendance (N = 16,415)

Time since last dental attendance	Proportion of participants % (n)
Within last 12 months	83.6 (13,730)
Within last 12 to 24 months	7.6 (1,250)
More than 2 years ago	4.9 (804)
More than 5 years ago	1.6 (262)
More than 8 years ago	0.5 (84)
More than 10 years ago	0.9 (152)
Prefer not to answer	0.8 (133)

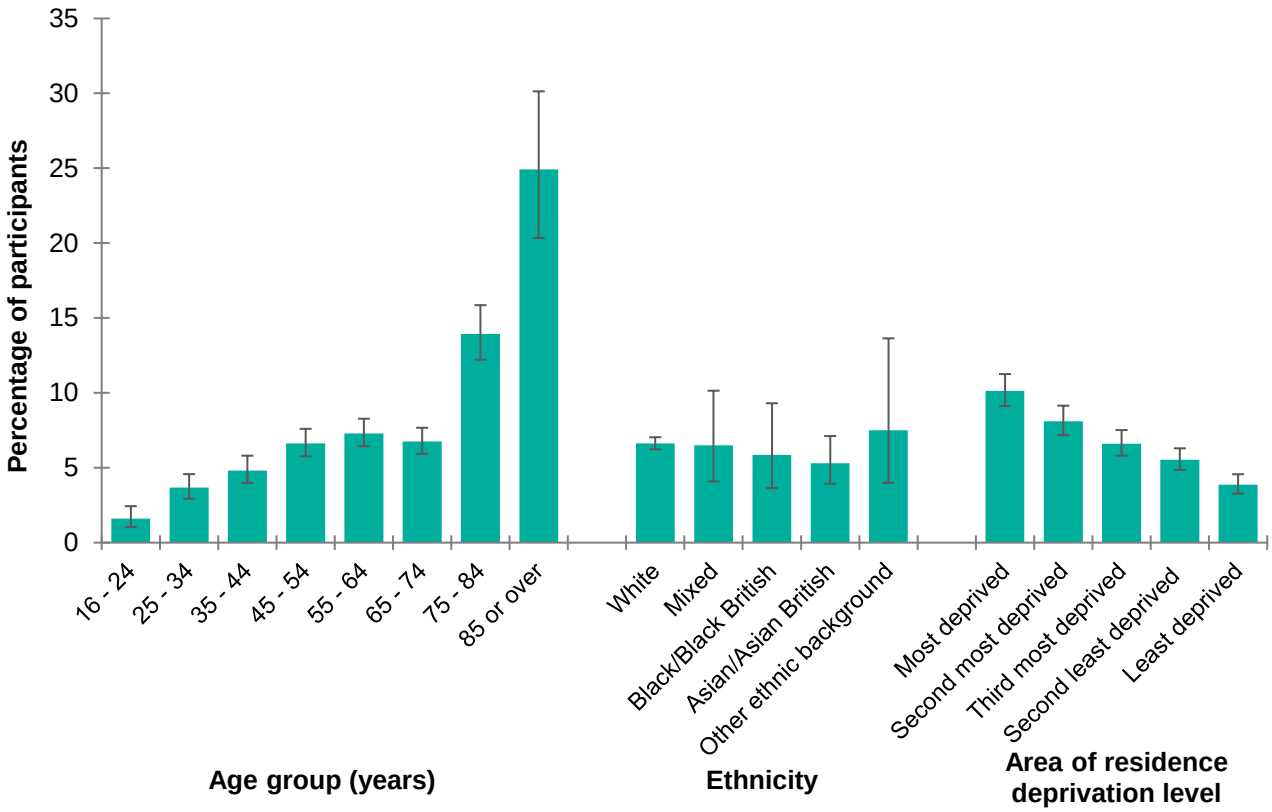
For the 7.9% of participants who had not seen a dentist in the last 2 years, the most common reasons were ‘no need to see the dentist/nothing wrong with my teeth/no natural teeth’ (28.2%), ‘afraid of dentists/don’t like seeing the dentist’ (27.6%) and ‘keep forgetting/haven’t got around to it’ (23.9%).

3.13.1 Ability to attend a dental practice

A small proportion of participants (6.8%; n=1,112) reported to have a disability or long-term illness that limited their ability to attend a dental practice for dental care. The likelihood of reporting a disability limiting attendance was similar in men and women, increased with increasing age and was similar across ethnic groups. Participants living in the most deprived areas were more likely (10.1%) to report a limitation than participants living in less deprived areas (3.9%) (Figure 22).

The most common limitation to attendance was being unable to climb stairs and the need for a ground floor surgery or practice with a lift, which was reported by 47.0% of participants with a limitation. Being unable to sit in a dental chair was reported as a limitation to attendance by 14.3% and being unable to leave their home was reported by 5.7% of participants with a limitation to attendance.

Figure 22: Percentage of participants reporting a disability or long-standing illness that limits ability to attend a dental practice, by age group, ethnic group and level of deprivation



3.14 Perceived barriers to dental care

To explore barriers to receipt of dental care, as participants themselves were currently dental attenders, they were asked to assess how difficult they perceived it would be for their neighbours to access care. Forty-six per cent of participants perceived that their neighbours would have no problems getting NHS dental care. Among those who perceived a barrier (49.5%), the most commonly reported were ‘hardly any dentists in the area accepting new NHS patients’ (52.9%), ‘long waiting lists for care’ (40.9%) and ‘high costs of care’ (40.3%).

3.15 Costs of NHS dental care

Just over half of the participants (52.2%) paid all the NHS charges for their dental care and 12.9% were fully exempt from dental charges (Table 5).

Table 5: Payment category for dental care (N = 16,392)

Payment category	Proportion of participants % (n)
Pay all NHS dental charges	52.2 (8,549)
Private dentist and pay for treatment	16.7 (2,731)
Exempt from all NHS dental charges	12.9 (2,119)
Pay all NHS charges and pay for some treatments privately	7.2 (1,185)
Partial exemption from NHS dental charges	2.5 (409)
Don't know if exempt from NHS dental charges	1.6 (268)
Other	1.5 (247)
Not sure	3.3 (536)
Prefer not to answer	2.1 (348)

Of the 16.7% of participants who received private dental care, 34.7% had chosen to stay with their existing dental practice when it stopped providing NHS care and 14.9% said they received private care as there were no NHS dental practices nearby (Table 6).

Table 6: Reason for seeking private dental care (N = 2,731)

Reason for seeking private dental care	Proportion of participants % (n)
Dentist went private and chose to stay with that practice	34.7 (948)
Prefer private dental care as think it is better	25.9 (707)
No dentists are offering NHS care nearby	14.9 (406)
Dentist will only see children on an NHS basis	2.7 (74)
Other reason	16.1 (439)
Prefer not to answer	4.8 (130)

3.15.1 Impact of cost of NHS dental care

To understand how NHS dental charges impact on the receipt of NHS dental care, participants were asked if they could afford to pay the costs of band 2 (£56 at the time of the survey) and band 3 (£244 at the time of the survey) courses of NHS dental care. Responses were categorised as ‘yes, quite easily’, ‘yes, but it would be a struggle,’ ‘yes, but only if I could pay a bit at a time’, ‘no, this would be too much for me to afford’, ‘this doesn’t apply as I have my dental treatment free’ and ‘prefer not to say’.

A proportion of participants receiving NHS care (7.7%) said that they would not be able to afford to pay for a band 2 course of dental care, which would include provision of a dental examination, fillings, root canal fillings and tooth extractions. Additionally, 21.0% reported that they would struggle to pay this charge. Participants living in the most deprived areas of the country were more likely (13.5%) to report not being able to afford to pay the charge than participants living in the least deprived areas (3.4%).

The proportion reporting that they would not be able to afford to pay for a band 3 course of treatment, which would include provision of crowns, bridges and dentures, was 21.8%. This was significantly more than those who would not be able to afford the band 2 fee. A further 24.6% said that they would struggle to pay the band 3 fee. Again, there was a social gradient in the proportion reporting not to be able to pay the band 3 charge (Figures 23 and 24).

Figure 23: Participants reported ability to pay the patient charge for a band 2 course of NHS dental care, by level of deprivation

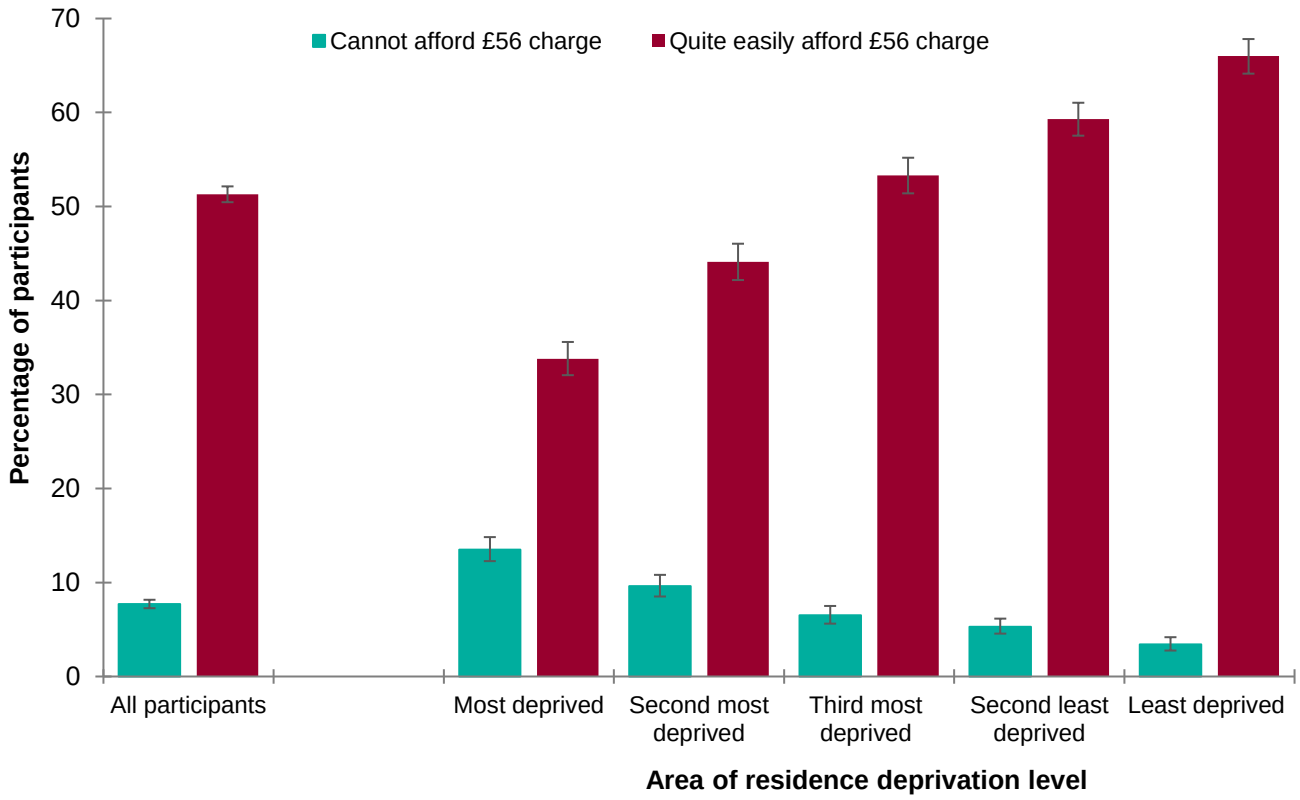
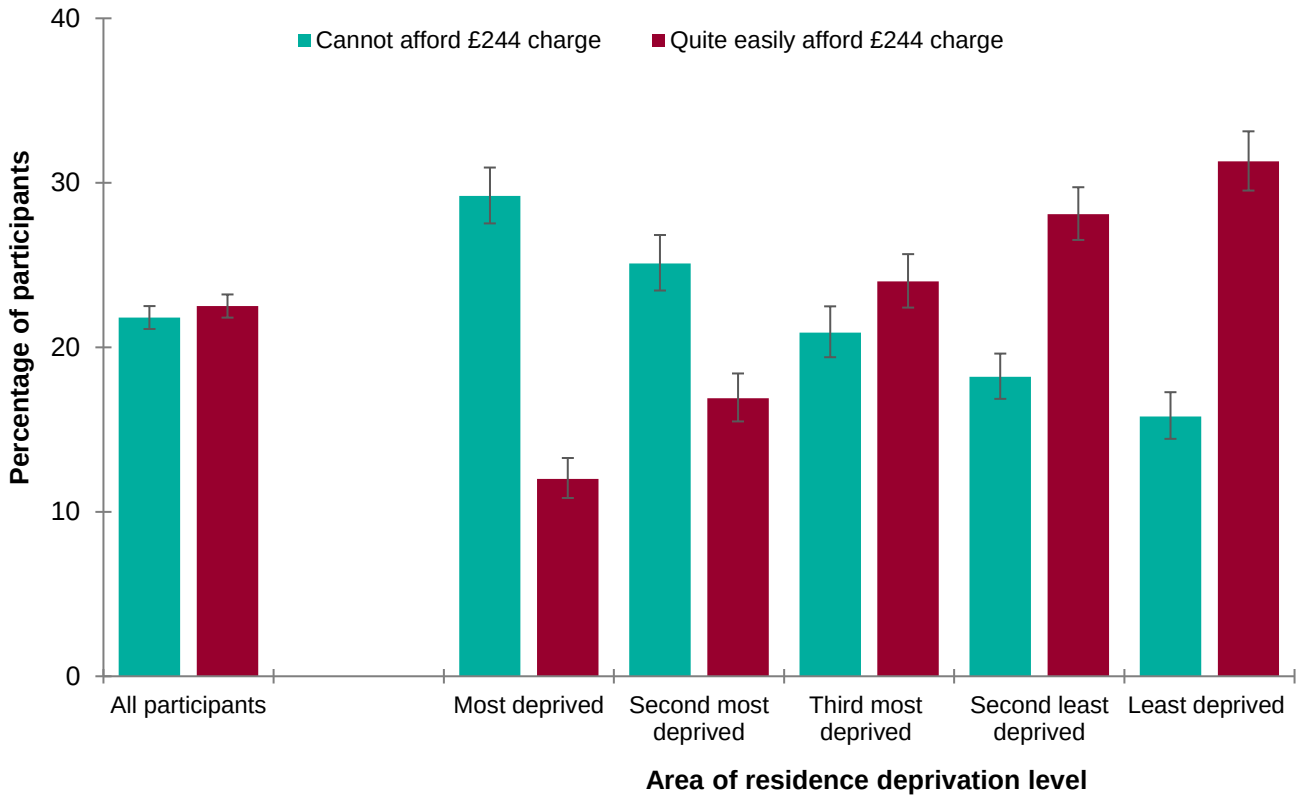


Figure 24: Participants reported ability to pay the patient charge for a band 3 course of NHS dental care, by level of deprivation



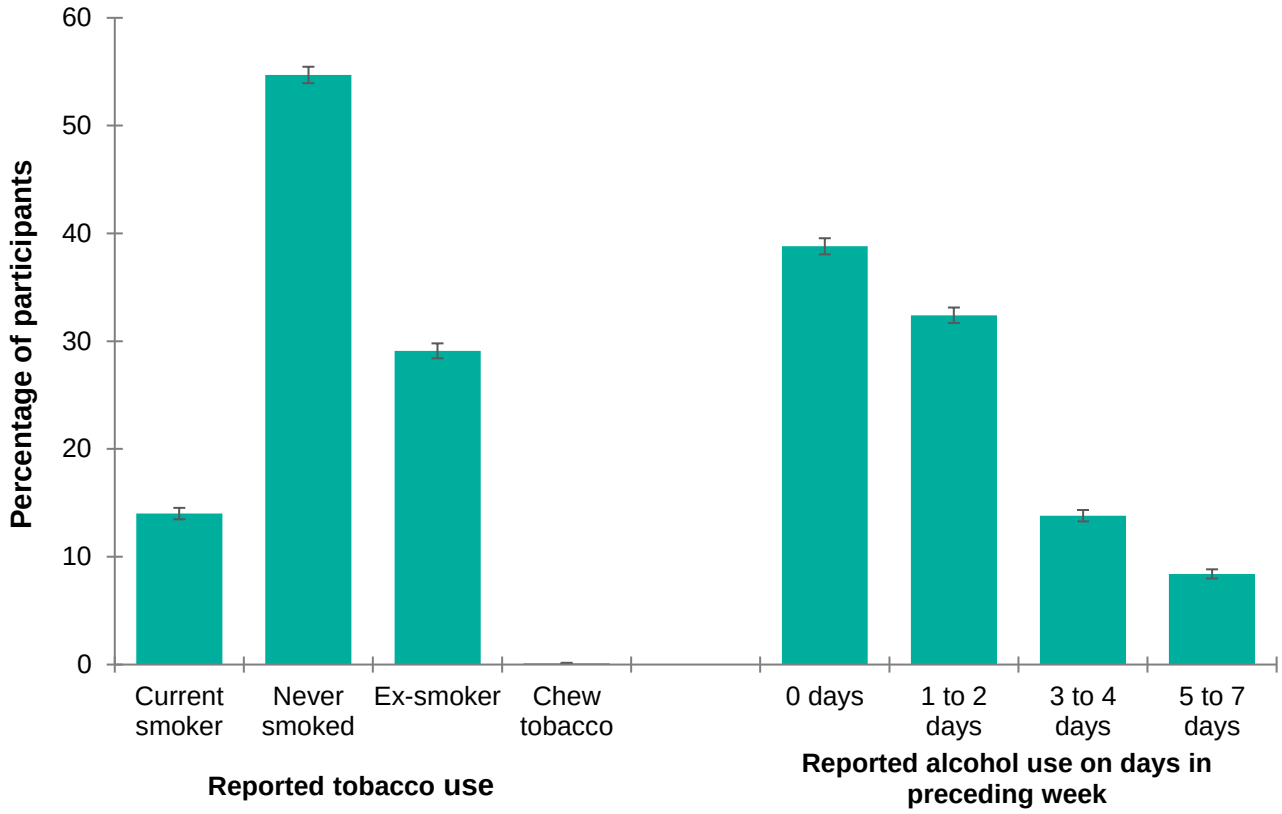
These responses suggest a significant proportion of adults may have unmet dental needs because of the costs of NHS dental care. This survey may underestimate this markedly given that those surveyed were accessing a dentist for care and may be unrepresentative of the general public, a proportion of whom may avoid seeking care due to costs.

3.16 Health behaviours

More than half of participants (54.7%) reported never to have smoked tobacco and 14.0% reported to be current smokers. This is similar to the findings of the latest general practitioner survey, which suggests 14.5% of people aged 18-years and older are current smokers[11].

The majority reported to have consumed alcohol on 2 days or fewer in the preceding week (71.2%) and 8.4% reported to have consumed alcohol on 5 or more days in the preceding week (Figure 25).

Figure 25: Participants reported tobacco and alcohol use



3.17 Receipt of preventive advice

Participants were asked if they had received advice from the dental team on how oral health affects general health, the effect of alcohol and smoking on oral or general health, healthy eating, good oral hygiene and use of fluoride toothpaste. The proportion of participants who reported receiving preventive advice from the dental team was high (89.5%). A lower proportion of participants in the older age group reported to have received preventive advice. The proportion reporting to have received preventive advice varied little by gender, ethnic group or level of deprivation.

Receipt of advice about oral hygiene was the most often reported (80.2%) and receipt of advice about alcohol use the least often reported (32.0%).

4. Discussion of results

The survey method produced a sample that was a reasonable reflection of the adult population of England although men and people aged under 45-years or over 84-years were under-represented. There was also some over representation of the second least deprived group and under representation of the most deprived groups in the sample.

In this survey of adult dental attendees, few had no natural teeth, but older adults were more likely to have no natural teeth and less likely to have a functional dentition. As tooth decay is a chronic disease and irreversible once it has progressed through the enamel layer of the tooth, it was unsurprising that the likelihood of having filled and crowned teeth increased with increasing age. Together with these needs for dental care to restore function and maintain existing fillings and crowns, older people were also more likely to report a disability limiting their access to dental care, which will have implications for the planning and delivery of dental services for older people. Given that participants were dental service users actively seeking professional care it is probable that the survey underestimates the number of people who have no teeth and consequently seek care less often than their dentate counterparts.

Differences were found between genders with men being more likely to have tooth decay and gingival bleeding than women. This was reflected in the finding that treatment need was greater in men. Despite these findings, women were more likely to report to be experiencing pain at the time of the survey and more likely to report having experienced impacts from problems with their teeth or mouths fairly or very often in the previous year.

Inequalities were found in the proportions of those having a functional dentition, having missing front teeth with no replacements and having tooth decay and one or more PUFA signs. There were also inequalities in gingival bleeding on probing, the need for urgent and non-urgent treatment and the reporting of oral health impacts. Despite having greater needs for oral healthcare, the likelihood of having fixed replacements of missing teeth, fillings or one or more crowns was significantly lower in people living in the most deprived areas of the country. There was also a social gradient in reported limitations in accessing a dental practice with people living in the most deprived areas more likely to report a limitation than people living in less deprived areas.

The ethnicity of survey participants was broadly similar to that of the population of England. People from Black, Asian and Minority ethnic groups were less likely to have dentures and more likely to have a functional dentition. However, they were also more likely to have tooth decay, have one or more PUFA signs and were more likely to report experiencing impacts from their oral health in the previous year. Despite these greater

treatment needs, they were less likely to have fillings or crowned teeth. However, due to disproportionate numbers in each of the groups, with many more participants in the White ethnic group, the further influence of ethnicity on oral status and impact from dental conditions may have been masked.

Barriers to receipt of dental care were identified. These included a disability or long-term illness that limited ability to attend a dental practice. The most common limitation was being unable to climb stairs and the need for a ground floor surgery or practice with a lift. Very few participants reported being unable to leave home to attend a dental practice, which was unsurprising given that the survey took place in a dental practice setting. The cost of care was also identified as a possible barrier to care for some participants. Significant proportions said that they would struggle to pay NHS dental patient charges. Cost is a well reported barrier to dental care[12, 13] and these findings suggest a significant proportion of adults may have unmet dental needs because of the costs of NHS dental care. It is worth considering that although the area deprivation profile of participants was broadly similar to that for England the survey sample may under-represent a proportion of the public for whom dental care is unaffordable and who seek care less often.

Generally, people who had last attended a dentist more than 2 years ago were more likely to have more missing teeth, fewer fixed replacements of missing teeth, more tooth decay and one or more PUFA signs, gingival bleeding on probing and were more likely to have a treatment need and an urgent treatment need. Unsurprisingly they were also more likely to report experiencing oral health impacts and were less likely to have fillings and crowned teeth. They were also more likely to report a limitation in accessing a dental practice than participants who had last attended a dentist less than 2 years ago.

It is tempting to compare the findings from this adults in dental practice survey with those of the last decennial survey of adult population oral health conducted in 2009. Although the measures reported in each of the surveys are deliberately similar because of their proven validity, the methods between the 2 have important differences meaning that the results are incomparable. The most notable difference is of course the populations for each survey. This current survey focuses upon only the population of adults presenting at a dental practice while the decennial surveys attempt to sample from the general population of adults. Those presenting for professional attention are likely to differ in significant ways from the general population as has already been described. Secondly, the current survey having been conducted in a dental setting had more favourable examination conditions than is possible within the decennial surveys. Better lighting and participant positioning within a dental surgery setting may mean that the visibility was more favourable in the current survey.

4.1 Limitations of the survey

This adults in dental practice survey involved more than 16,000 participants from across England. The major benefit of this survey is the ability to see a picture of adult oral health at lower level geographies, which has never been attempted before. A challenge of such a scale of survey is the meaningful comparison between areas. Given the large number and geographic spread of dental examiners a decision was taken to standardise examiners who had previously calibrated for other recent surveys but not to re-calibrate them all for this adult survey. This pragmatic decision was taken as it was not known whether the survey would prove to be feasible and warrant the time and cost of central calibration exercises.

The survey proved to be acceptable to the majority of dental practices and to a substantial number of their patients yielding good response rates. However, not all areas took part and some practices refused to host the survey and, in some practices, very few people agreed to participate which may have introduced bias into the findings. While weighting the findings according to particular characteristics in the survey population, for example age profile, may have addressed imbalance, little information exists to offer a complete picture of this dental practice population to allow such an approach. Additionally, it should be noted that neither the practices nor the participants were selected randomly potentially reducing the generalisability of the findings to adults attending general dental practices. Nonetheless, the questionnaire for this survey obtained a response rate of 65.5% and a response rate of 56.4% for the dental examination, which was similar to other oral health surveys[6]. It is not known how participants differed from those who chose not to participate to assess whether further bias was introduced.

While the demographics of participants were broadly similar to those of the general public in other aspects, the age profile was skewed towards those aged 55 to 84-years and men were moderately under represented. Most importantly however, as already noted, interpretation of the findings from this survey must take into account that the participants were adults attending general dental practices. Participants may well have been unrepresentative of the general public in a number of important ways including their dental needs, attitudes towards dental care and its affordability, particularly given the skew towards older adults. The findings therefore are of use in relation to the population of adults attending general dental practices but may not reflect a complete picture of oral health needs of the adult population of England thus limiting the utility of the findings for service and workforce planning.

5. Conclusions and commentary

5.1 Conclusion

This is the first large scale survey of its type in England which provides information at local authority level about the oral health status of adult dental attendees. The survey paints a picture of a dentate population where restorations are highly prevalent and where decay and gingival disease are still commonplace. Inequalities were most evident in the oldest age groups and in those living in the most deprived areas of England. However, across the board there were high levels of need noted among adults presenting at dental practices. It must be considered that the survey participants were adults who had chosen to attend general dental practices for a routine check-up or for dental treatment and their dental needs may be different from that of the general public. Caution should therefore be taken when using the data to inform need for future dental services and workforce planning for the general population. For example, it would appear from the survey results that very few adults are now using dentures, and this indeed may be the case, but we know that people with no natural teeth are likely to attend a dental practice less often. Data is needed on the wider population to see if all the findings from this survey hold true across the whole adult population in England.

5.2 Implications of the findings

Despite the well documented improvements in oral health in the last 40 years[14], this survey shows that there are still significant proportions of adults with significant oral health needs. These include a need for the prevention and treatment of tooth decay, as well as repair and replacement of fillings, crowns and fixed and removable replacement teeth.

Social gradients were present in most of the oral health indicators included in the survey. There were also social gradients in need for, access to and outcomes of general dental services. There were variations in some oral health indicators by age, gender and ethnicity.

Ways of organising services to overcome these social inequalities need to be explored.

5.3 Putting this information to use

For local authorities, these data may be used to inform joint strategic needs assessments and local oral health needs assessments from which local oral health improvement programmes may be planned. Advice may be sought from consultants in dental public health in PHE centres in interpreting the data.

The data may also be used to inform planning and commissioning of oral healthcare services, which are the responsibility of NHS England. They may also inform dental workforce development, which is the responsibility of Health Education England.

Local authorities may seek advice from consultants in dental public health in PHE centres on commissioning additional surveys using this method. This would allow them to evaluate their interventions and to investigate specific population groups.

Cleaned and verified copies of the raw, anonymised data are available to PHE dental epidemiology coordinators. This will enable them and their colleagues working in PHE centres to make maximum use of data if further analysis is required for local use.

Local authority personnel can apply to become a super-user and access the raw, anonymised data for specific purposes via the following process.

1. Local authority requestor to send an email to DentalPHIntelligence@phe.gov.uk providing the following information:
    a. Name of individual to be allocated as ‘super user’
    b. Local Authority
    c. Contact details
2. The nominated ‘Super User’ will be contacted by a member of the Dental Public Health Intelligence Team who will send a data sharing agreement to be sent over for signing.
3. Once the signed agreement has been received and approved, the super user will be sent their (anonymised) data along with a set of analysis guidance notes.

Any other data requests that are for national data, or complex queries, should be emailed to DentalPHIntelligence@phe.gov.uk

Full tables of results at PHE, NHS England, local government region and local authority level are available at www.gov.uk/government/collections/oral-health

Acknowledgement

Public Health England acknowledges the support of the National Institute for Health Research Clinical Research Network (NIHR CRN) and the dental practices that hosted the survey.

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7. Glossary of terms

Arrested decay	Tooth decay that has occurred but is not active.
Artificial teeth	False teeth that replace a person's natural teeth.
Bleeding on probing	Bleeding from the gum tissue following gentle probing of the gum. It is a sign that the gums are inflamed (gingivitis) and is a response by the gum tissue to irritation from plaque build-up on the tooth surface near to the gum.
Bridge	A fixed appliance that is cemented to teeth either side of a space to replace missing teeth.
Complete denture	A removable appliance that replaces all the natural teeth in one jaw.
Confidence limits	Confidence limits are the upper and lower values which you can be 95% confident that the true value lies.
Crown	A tooth restoration which is cemented to the tooth and covers all the natural coronal surfaces. It is usually made of metal, porcelain or a combination of both materials.
Dental implant	A fixed appliance embedded in the jawbone that anchors an artificial replacement tooth.
Dentate	Having one or more natural teeth.
Dentine	The hard layer forming the bulk of a tooth beneath the enamel surface.
Edentulousness	Having no natural teeth.
Enamel	The very hard outer layer of the tooth.
Ethnic group	An ethnic group is a category of people who identify with each other, usually based on presumed similarities such as common language, ancestry, history, society, culture or nation.

Filling	Restores the form, function and appearance of a tooth and is placed by a dental care professional.
Fixed replacements	A dental bridge or a dental implant.
Functional dentition	Having 21 or more natural teeth.
Index of multiple deprivation	The Index of Multiple Deprivation is a relative measure of deprivation.
Lower-tier local authority	Districts, metropolitan districts, London boroughs and unitary authorities
Missing teeth	Teeth that were not present or visible in the mouth at the time of examination.
Natural teeth	A participant's own teeth.
Oral health impact	A measure of the overall impact of oral problems on an individual.
Partial dentures	A removable appliance that replaces some of the natural teeth in one jaw and which can be removed.
Periodontal	Relating to the gums.
Plaque	A sticky white material of bacteria and their products that forms on the surfaces of teeth if they are not cleaned.
General dental practices	High street dental practices that may be NHS or private.
Posterior functional contacts	Having no back teeth that contact each other for chewing food.

PUFA	An index of badly decayed and broken-down teeth that are likely to be causing problems in need of early attention: **P**ulp - the opening of the pulp chamber is visible or the coronal tooth structures have been destroyed by decay and only roots are left. **U**lceration - sharp edges of a tooth with pulp involvement or root fragments have caused ulceration of the surrounding soft tissues. **F**istula - a pus-releasing tract related to a tooth with decay into the tooth pulp **A**bscess - a pus-containing swelling related to a tooth with decay into the tooth pulp
Root canal fillings	The inflamed or infected pulp is removed, and the inside of the tooth and its root is cleaned and filled.
Statistical significance	Statistical significance is a determination that the results in the data are not explainable by chance alone.
Tooth decay	A disease that results in the demineralisation and destruction of the hard tissues of the tooth caused by microbial activity and dietary sugars.
Tooth extractions	Tooth extraction is a procedure where a tooth or teeth are removed by an oral or maxillofacial surgeon using dental tools and equipment.
Tooth pulp	The centre of the tooth that contains the nerve and blood supply to the tooth.
Treatment need	Having a disease or condition in the mouth that needs the attention of a dental care professional.
Upper-tier local authority	Counties, metropolitan counties, unitary authorities.

8. Appendix summary

Appendix 1: National Dental Epidemiology Programme for England, Oral Health Survey of Adults in Practice 2018

Public Health England

LA did not participate in survey
No practices agreed to take part
Insufficient numbers examined for estimate

Region	Upper-Tier LA Code	Upper-Tier LA Name	Number of clinical examinations	Number of questionnaires	% with a functional dentition	% with active decay (DT>0)	Average number of decayed teeth (for those with active decay)	% with filled teeth	% with dentures	% with bleeding on probing	% with PUFA	% with any treatment need	% with an urgent treatment need	% not seen a dentist in the last 2 years	% suffering any oral health impacts fairly or very often
Country	**E92000001**	**England**	**14,270**	**16,572**	**81.9**	**26.8**	**2.1**	**90.2**	**15.4**	**52.9**	**5.2**	**70.5**	**4.9**	**7.9**	**17.7**
East Midlands	E06000015	Derby	22	23											
	E10000007	Derbyshire	308	363	78.9	28.2	2.1	92.2	17.2	49.4	5.3	68.8	5.2	7.4	13.8
	E06000016	Leicester	151	177	85.4	36.4	2.4	87.4	13.2	42.3	5.5	83.7	2.1	10.9	23.4
	E10000018	Leicestershire	685	804	81.6	25.4	1.9	92.0	15.2	50.0	3.9	63.4	2.6	8.1	13.5
	E10000019	Lincolnshire	368	410	81.3	20.7	1.8	88.6	16.3	37.2	2.5	44.6	1.6	7.9	13.7
	E10000021	Northamptonshire	852	988	83.1	23.9	2.0	90.5	14.0	48.8	3.6	61.8	5.3	8.4	18.1
	E06000018	Nottingham	9	10											
	E10000024	Nottinghamshire (No data for Ashfield, Bassetlaw, Rushcliffe)	70	78	84.3	20.0	1.4	90.0	14.3	52.2	11.8	50.0	4.3	2.6	11.5
	E06000017	Rutland	56	60	87.5	12.5	1.7	89.3	14.3	33.9	0.0	68.5	1.8	3.4	10.2
East of England	E06000055	Bedford	81	87	84.0	28.4	2.3	87.7	14.8	53.8	6.3	75.9	5.0	6.9	16.1
	E10000003	Cambridgeshire	70	231	72.9	15.7	1.5	84.3	22.9	17.1	4.4	43.5	5.0	5.7	16.9
	E06000056	Central Bedfordshire	69	75	89.9	23.2	1.6	91.3	17.4	30.8	6.1	59.7	10.0	4.1	18.7
	E10000012	Essex (No data for Basildon, Brentwood, Castle Point, Colchester, Harlow, Rochford, Uttlesford)	54	56	88.9	38.9	2.4	90.7	3.7	51.0	5.8	73.1	2.0	16.1	17.9
	E10000015	Hertfordshire													
	E06000032	Luton	79	82	73.4	39.2	2.3	81.0	15.2	65.4	7.9	85.5	13.9	11.3	33.3
	E10000020	Norfolk (No data for Great Yarmouth)	497	598	81.3	22.3	2.1	93.4	14.1	45.7	9.8	84.9	8.9	6.0	16.6
	E06000031	Peterborough	13	44											22.7
	E06000033	Southend-on-Sea													
	E10000029	Suffolk (No data for Forest Heath, Waveney)	84	110	84.5	25.0	2.1	91.7	13.1	70.5	6.3	80.5	6.1	7.6	12.0
	E06000034	Thurrock													

Appendix 1 continued: National Dental Epidemiology Programme for England, Oral Health Survey of Adults in Practice 2018

Public Health England

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Region	Upper-Tier LA Code	Upper-Tier LA Name	Number of clinical examinations	Number of questionnaires	% with a functional dentition	% with active decay (DT>0)	Average number of decayed teeth (for those with active decay)	% with filled teeth	% with dentures	% with bleeding on probing	% with PUFA	% with any treatment need	% with an urgent treatment need	% not seen a dentist in the last 2 years	% suffering any oral health impacts fairly or very often
London	E09000002	Barking and Dagenham													
	E09000003	Barnet	10	12											
	E09000004	Bexley	23	25											
	E09000005	Brent	84	87	82.1	23.8	2.0	79.8	15.5	13.8	7.5	71.1	6.0	21.7	19.8
	E09000006	Bromley	21	21											
	E09000007	Camden	6	7											
	E09000008	Croydon	137	142	86.9	32.1	2.8	86.9	13.9	58.5	12.6	65.9	10.4	16.9	24.6
	E09000009	Ealing	106	106	85.8	44.3	2.2	87.7	12.3	82.9	25.0	79.0	25.0	12.3	27.9
	E09000010	Enfield	17	15											
	E09000011	Greenwich	14	14											
	E09000012	Hackney (including City of London)													
	E09000013	Hammersmith and Fulham	15	21											
	E09000014	Haringey	13	11											
	E09000015	Harrow	54	55	81.5	24.1	2.9	83.3	7.4	48.1	7.8	46.3	7.7	9.3	18.2
	E09000016	Havering	72	74	93.1	31.9	2.2	91.7	12.5	65.7	8.6	88.9	4.2	1.4	14.9
	E09000017	Hillingdon	161	177	91.9	26.7	1.8	83.9	7.5	46.3	3.2	46.9	5.1	9.1	17.6
	E09000018	Hounslow	58	60	93.1	25.9	1.5	79.3	10.3	67.2	5.5	70.7	8.9	11.7	28.3
	E09000019	Islington	6	8											
	E09000020	Kensington and Chelsea	7	15											
	E09000021	Kingston upon Thames	72	80	88.9	18.1	1.7	83.3	16.7	80.3	2.8	80.0	3.0	13.9	15.0
	E09000022	Lambeth	27	32										12.9	25.0
	E09000023	Lewisham	18	18											
	E09000024	Merton	69	74	84.1	21.7	2.2	84.1	14.5	53.6	4.6	72.5	2.9	15.1	24.3
	E09000025	Newham	25	26											
	E09000026	Redbridge													
	E09000027	Richmond upon Thames	58	61	79.3	19.0	2.5	93.1	19.0	69.0	1.8	75.4	1.7	9.8	19.7
	E09000028	Southwark	17	18											
	E09000029	Sutton	50	53	84.0	10.0	1.4	82.0	14.0	42.0	4.1	58.0	2.1	11.3	18.9
	E09000030	Tower Hamlets													
	E09000031	Waltham Forest													
	E09000032	Wandsworth	62	78	90.3	24.2	1.4	83.9	4.8	21.0	4.9	67.7	1.6	14.5	20.5
	E09000033	Westminster	12	18											

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Region	Upper-Tier LA Code	Upper-Tier LA Name	Number of clinical examinations	Number of questionnaires	% with a functional dentition	% with active decay (DT>0)	Average number of decayed teeth (for those with active decay)	% with filled teeth	% with dentures	% with bleeding on probing	% with PUFA	% with any treatment need	% with an urgent treatment need	% not seen a dentist in the last 2 years	% suffering any oral health impacts fairly or very often
North East	E06000047	County Durham	183	206	78.7	26.8	1.8	89.1	16.9	70.5	2.8	84.5	7.2	6.0	17.6
	E06000005	Darlington	143	151	81.1	27.3	2.4	88.8	19.6	74.1	3.6	87.3	7.9	14.1	21.2
	E08000037	Gateshead	123	150	77.2	26.0	2.8	82.9	15.4	47.5	2.5	63.1	0.8	10.1	22.8
	E06000001	Hartlepool	85	98	82.4	25.9	3.0	83.5	11.8	52.9	3.2	80.0	2.4	5.1	24.5
	E06000002	Middlesbrough	179	240	70.4	28.5	2.9	88.8	20.7	43.8	10.7	75.7	3.4	7.5	27.9
	E08000021	Newcastle upon Tyne	25	34										6.1	11.8
	E08000022	North Tyneside	23	25											
	E06000057	Northumberland	112	118	75.0	43.8	1.8	92.9	22.3	79.3	1.8	84.8	11.6	6.0	13.6
	E06000003	Redcar and Cleveland	179	239	78.8	27.4	2.3	94.4	17.9	44.1	9.2	80.4	1.7	9.2	21.8
	E08000023	South Tyneside	194	233	79.4	18.6	1.8	91.2	19.6	46.4	6.8	47.9	0.5	11.7	25.8
	E06000004	Stockton-on-Tees	183	244	82.5	29.5	1.9	95.6	17.5	38.8	6.7	87.4	0.0	9.4	25.0
	E08000024	Sunderland	75	85	78.7	24.0	2.8	86.7	20.0	52.1	4.1	64.0	1.3	7.1	24.7
North West	E06000008	Blackburn with Darwen	117	131	77.8	35.9	3.0	90.6	17.9	63.6	3.5	87.1	4.3	6.2	14.0
	E06000009	Blackpool													
	E08000001	Bolton	148	167	77.7	31.8	1.9	86.5	16.9	9.5	7.7	70.9	4.8	8.4	21.1
	E08000002	Bury	123	135	83.7	32.5	2.4	91.9	14.6	57.3	5.2	81.1	6.7	8.3	12.7
	E06000049	Cheshire East	202	211	80.7	29.2	1.8	90.6	18.3	76.2	3.5	84.7	7.0	10.0	14.7
	E06000050	Cheshire West and Chester													
	E10000006	Cumbria (No data for Eden)	438	490	78.8	29.9	2.0	94.1	17.8	45.1	5.1	66.7	4.3	5.8	19.0
	E06000006	Halton	135	146	74.1	28.9	2.4	90.4	19.3	73.9	3.8	85.7	10.0	8.9	24.7
	E08000011	Knowsley	132	147	74.2	31.1	2.9	88.6	24.2	75.0	4.7	90.1	6.9	8.8	25.2
	E10000017	Lancashire	663	750	83.1	27.8	2.0	92.5	14.2	62.0	4.0	88.3	4.0	6.0	15.0
	E08000012	Liverpool	141	174	83.7	41.8	2.6	87.9	14.9	73.0	8.7	87.9	8.6	12.1	26.4
	E08000003	Manchester	63	72	82.5	31.7	1.9	90.5	20.6	65.6	1.6	55.6	1.6	6.9	26.4
	E08000004	Oldham	171	190	80.7	34.5	2.3	90.1	11.1	79.2	8.4	85.3	3.0	7.6	25.1
	E08000005	Rochdale	116	136	84.5	30.2	2.0	87.9	11.2	78.7	2.7	87.6	5.5	6.2	16.2
	E08000006	Salford	134	138	76.9	33.6	3.4	88.1	15.7	64.2	15.4	92.5	0.8	11.8	22.8
	E08000014	Sefton	126	160	81.0	42.1	2.7	92.9	14.3	75.2	5.7	94.4	8.5	8.8	23.8
	E08000013	St. Helens	154	174	81.2	35.1	2.0	92.2	16.9	75.0	3.9	77.1	12.0	12.1	19.5
	E08000007	Stockport	164	177	77.4	18.9	2.4	93.3	21.3	44.1	11.0	59.3	0.0	5.6	17.7
	E08000008	Tameside	126	144	83.3	21.4	2.1	91.3	16.7	54.4	5.0	48.4	1.6	8.5	16.3
	E08000009	Trafford	104	133	80.8	20.2	1.4	93.3	18.3	32.0	8.7	47.6	0.0	11.4	17.4
	E06000007	Warrington	122	143	88.5	27.9	2.1	91.8	13.9	71.9	8.3	79.5	15.7	9.8	25.2
	E08000010	Wigan	175	192	79.4	25.7	2.1	88.0	18.3	13.2	10.5	64.6	4.7	7.9	15.7
	E08000015	Wirral	175	191	78.3	38.3	1.7	92.0	18.3	77.1	1.7	91.4	12.9	8.9	18.3

Appendix 1 continued: National Dental Epidemiology Programme for England, Oral Health Survey of Adults in Practice 2018

Public Health England

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Insufficient numbers examined for estimate

Region	Upper-Tier LA Code	Upper-Tier LA Name	Number of clinical examinations	Number of questionnaires	% with a functional dentition	% with active decay (DT>0)	Average number of decayed teeth (for those with active decay)	% with filled teeth	% with dentures	% with bleeding on probing	% with PUFA	% with any treatment need	% with an urgent treatment need	% not seen a dentist in the last 2 years	% suffering any oral health impacts fairly or very often
South East	E06000036	Bracknell Forest													
	E06000043	Brighton and Hove	119	139	75.6	11.8	1.4	88.2	19.3	16.8	5.4	33.9	4.2	8.0	20.6
	E10000002	Buckinghamshire	202	242	86.1	15.3	1.7	91.1	11.4	45.0	3.1	36.0	4.6	9.5	14.9
	E10000011	East Sussex	229	246	80.8	25.3	1.9	93.4	12.2	28.0	9.3	54.9	7.2	7.1	17.5
	E10000014	Hampshire													
	E06000046	Isle of Wight													
	E10000016	Kent													
	E06000035	Medway													
	E06000042	Milton Keynes	109	121	86.2	34.9	2.7	88.1	11.0	68.5	4.8	77.9	11.2	7.6	24.8
	E10000025	Oxfordshire	577	662	86.0	18.9	1.7	91.0	12.5	39.4	1.1	55.9	2.6	7.0	12.1
	E06000044	Portsmouth													
	E06000038	Reading													
	E06000039	Slough	37	41	91.9	48.6	2.3	86.5	8.1	89.2	10.8	73.0	19.4	15.0	20.0
	E06000045	Southampton													
	E10000030	Surrey													
	E06000037	West Berkshire													
	E10000032	West Sussex													
	E06000040	Windsor and Maidenhead													
	E06000041	Wokingham													
South West	E06000022	Bath and North East Somerset	23	24											
	E06000028	Bournemouth													
	E06000023	Bristol, City of	23	27											
	E06000052	Cornwall (including Isles of Scilly)													
	E10000008	Devon (No data for East Devon, Mid Devon, South Hams, Torridge, West Devon)	187	194	80.2	35.3	2.0	94.1	17.6	70.6	16.3	88.2	4.0	5.2	10.8
	E06000059	Dorset													
	E10000013	Gloucestershire	98	105	88.8	15.3	1.7	92.9	9.2	68.7	3.1	60.2	4.3	2.9	16.2
	E06000024	North Somerset	28	23											
	E06000026	Plymouth													
	E06000029	Poole													
	E10000027	Somerset	202	227	81.2	46.0	2.4	94.6	15.3	84.1	6.6	94.0	15.2	8.4	17.6
	E06000025	South Gloucestershire													
	E06000030	Swindon	43	79	83.7	25.6	1.5	90.7	14.0	53.5	2.3	93.0	4.8	7.6	22.8
	E06000027	Torbay	65	66	70.8	29.2	1.5	92.3	21.5	60.0	14.3	87.7	0.0	6.1	10.6
	E06000054	Wiltshire	57	94	80.7	26.3	1.4	93.0	14.0	55.4	3.5	77.2	5.3	1.1	19.1

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West Midlands	E08000025	Birmingham													
	E08000026	Coventry	44	49	86.4	52.3	2.2	84.1	6.8	59.1	2.3	86.4	11.4	14.3	24.5
	E08000027	Dudley	21	22											
	E06000019	Herefordshire, County of													
	E08000028	Sandwell	18	18											
	E06000051	Shropshire													
	E08000029	Solihull													
	E10000028	Staffordshire	505	598	78.8	25.5	1.7	89.1	19.0	68.5	2.0	67.2	0.6	6.5	12.2
	E06000021	Stoke-on-Trent	185	186	76.8	43.2	2.7	86.5	18.4	90.6	2.2	91.9	7.0	9.7	9.7
	E06000020	Telford and Wrekin													
	E08000030	Walsall													
	E10000031	Warwickshire	370	437	84.1	16.5	1.7	89.7	14.1	32.9	2.2	52.3	2.2	6.2	14.0
	E08000031	Wolverhampton	113	123	82.3	20.4	2.7	92.9	20.4	76.1	2.7	91.2	2.7	7.3	20.3
	E10000034	Worcestershire (No data for Redditch)	119	132	84.9	18.5	1.4	85.7	13.4	35.3	7.7	37.3	5.1	3.1	10.6
Yorkshire and the Humber	E08000016	Barnsley													
	E08000032	Bradford	60	73	91.7	33.3	1.9	90.0	5.0	31.7	1.7	76.7	5.0	9.6	19.2
	E08000033	Calderdale													
	E08000017	Doncaster													
	E06000011	East Riding of Yorkshire	64	152	82.8	37.5	1.9	98.4	14.1	76.2	7.9	90.5	3.2	5.3	17.2
	E06000010	Kingston upon Hull, City of													
	E08000034	Kirklees													
	E08000035	Leeds	167	171	89.2	33.5	1.8	92.2	12.6	66.9	3.0	61.8	1.2	5.9	24.0
	E06000012	North East Lincolnshire	16	30											
	E06000013	North Lincolnshire	85	101	77.6	21.2	2.7	88.2	23.5	30.6	8.4	67.9	9.0	11.9	10.9
	E10000023	North Yorkshire	300	325	77.7	19.0	1.6	91.7	17.3	31.5	3.1	82.7	2.4	3.7	12.4
	E08000018	Rotherham													
	E08000019	Sheffield													
	E08000036	Wakefield													
	E06000014	York	38	45	89.5	7.9	1.3	92.1	7.9	25.0	2.7	56.8	2.7	11.1	15.6

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Regions	E12000001	North East	1,504	1,823	78.4	27.3	2.2	90.2	18.6	53.4	5.3	75.4	3.5	9.0	22.6
	E12000002	North West[i]	3,769	4,242	80.5	30.4	2.2	91.2	16.5	58.8	5.9	78.8	5.6	8.0	19.0
	E12000003	Yorkshire and The Humber[ii]	757	934	82.8	25.0	1.9	91.7	15.6	44.6	4.3	75.4	3.2	6.1	16.5
	E12000004	East Midlands[iii]	2,521	2,913	82.1	24.7	2.0	90.5	15.0	47.0	4.0	61.7	3.7	8.0	15.7
	E12000005	West Midlands[iv]	1,417	1,613	81.0	25.5	2.0	88.8	16.4	59.4	2.8	66.1	3.1	6.8	13.4
	E12000006	East of England[v]	970	1,311	81.9	24.9	2.1	90.1	14.3	46.8	7.9	77.1	7.9	6.8	17.4
	E12000007	London[vi]	1,233	1,327	87.3	27.4	2.1	84.3	12.2	54.1	7.9	67.5	6.8	11.6	21.7
	E12000008	South East[vii]	1,363	1,560	84.7	20.7	1.9	90.8	12.5	40.2	3.8	52.6	4.8	7.9	15.9
	E12000009	South West[viii]	736	849	82.2	31.5	2.0	93.8	14.4	69.2	6.5	81.9	8.2	5.6	15.4
Country	**E92000001**	**England**	**14,270**	**16,572**	**81.9**	**26.8**	**2.1**	**90.2**	**15.4**	**52.9**	**5.2**	**70.5**	**4.9**	**7.9**	**17.7**

[i] Excludes Blackpool; Cheshire West and Chester; part of Cumbria

[ii] Excludes Barnsley; Calderdale; Doncaster; City of Kingston upon Hull; Kirklees; Rotherham; Sheffield; Wakefield

[iii] Excludes parts of Nottinghamshire

[iv] Excludes Birmingham; County of Herefordshire; Shropshire; Solihull; Telford and Wrekin; Walsall; part of Worcestershire

[v] Excludes Hertfordshire; Southend-on-Sea; Thurrock; parts of Essex, part of Norfolk; parts of Suffolk

[vi] Excludes Barking and Dagenham; Hackney (including City of London); Redbridge; Tower Hamlets; Waltham Forest

[vii] Excludes Bracknell Forest; Hampshire; Isle of Wight; Kent; Medway; Portsmouth; Reading; Southampton; Surrey; West Berkshire; West Sussex; Windsor and Maidenhead; Wokingham

[viii] Excludes Bournemouth; Cornwall (including Isles of Scilly); Dorset; Plymouth; Poole; South Gloucestershire