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4: Complexity and maintenance - a report from the Adult Dental Health Survey 2009

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Introduction

The patterns of dental decay and other oral disease across the population are described in detail in the reports from the Adult Dental Health Survey 2009 series *Oral disease and related disorders* and *Urgent conditions*. Oral health is, however, not simply about disease, and maintaining the dentition after disease has been managed is an ongoing concern. Where decay has been treated by restoration, dental care to maintain what has already been done is often more complex, time consuming and expensive than the initial disease management. Dental disease and the restorative treatment is a lifelong concern with a lifelong cost.

When a tooth is restored with a filling or a crown, the damage to the tooth is permanent but the artificial filling or crown is not. Typically fillings and crowns would be expected to last a number of years: the longevity of the restoration depends on a complex range of factors but data from the NHS would suggest that the majority of small fillings should last at least 10 years for example, but that size and material are related to longevity[1]. In other words, when a filling, crown or other restoration (for example, a veneer) is placed, a cycle of restoration and re-restoration is initiated which persists until the tooth is lost or until the end of the person's life. If the tooth is lost there is also a restorative need if it is to be replaced.

This report looks at the oral health of the people of England, Wales and Northern Ireland by measuring the extent of the accumulated effects of restorative treatment and where these effects fall in the population. In order to identify what the future might hold, the report considers what has happened to people's teeth, as measured by the numbers of teeth and tooth surfaces that have fillings, artificial crowns or other restorations. The condition of these restorations is also investigated and reported. It also looks at how lost teeth have been replaced.

All of the Tables are to be found at the back of the report.

Full background and methodological details for the survey, including response and clinical examination conversion rates can be found in *Foundation report: Adult Dental Health Survey 2009*. A glossary of all clinical terms can also be found in this report.

Key findings

- Eighty four per cent of dentate adults had at least one filled tooth, and for those with a filling the mean number of teeth affected was 7.2 with an average of 2.1 surfaces affected per restored tooth.

- Adults aged under 45 years were less likely to have any fillings, and those who did had relatively low numbers of filled teeth. By contrast, 97 per cent of dentate adults aged 45 to 54 had a filled tooth and they had 9.1 teeth affected on average.

- In 2009, 37 per cent of dentate adults had artificial crowns. There was significant variation with age; only 5 per cent of the 16 to 24 year olds had crowns compared to between 55 and 59 per cent of those aged 45 to 74.

- For those with crowns, on average there were three per person, amounting to an estimated 47.6 million crowns across England, Wales and Northern Ireland.

- The majority of dentate adults (85 per cent) had a tooth affected by restoration

- Among people with at least one restoration, 9 per cent had some secondary decay (decay which is immediately adjacent to previously placed fillings or fissure sealants) in their mouth, and 26 per cent had either secondary decay or an unsound restoration for some other reason, in other words the likely need for some sort of intervention.

- Not surprisingly, failing restorations were most common in the groups with the most restored teeth, so there was a significant age related risk of having a restored tooth needing some attention.

- The average number of restored but otherwise sound teeth has fallen from 8.1 teeth in 1978 to 6.7 in 2009.

- In 2009, nearly one in five adults wore removable dentures of some description (partial or complete). This included almost all of the 6 per cent who were edentate, as well as 13 per cent who relied on a combination of dentures and natural teeth.

- Over a third of people (37 per cent) had none of the eight indicators of complexity and a further 27 per cent had only one. Three or more indicators would represent a fair degree of complexity in terms of ongoing management of multiple conditions, and this threshold was reached by 19 per cent of the population.

4.1 Restorations

Definitions

Fillings are generally placed in the first instance to manage tooth decay, however throughout a lifetime they may need to be replaced for other reasons (such as fracture of the filling or the already filled tooth breaking). ‘Restorations’ refers to fillings as well as all other permanent treatments involving the replacement of tooth structure for any reason, including artificial crowns and also veneers. In this report, dentures, bridges and implants are not defined as restorations.

4.1.1 Fillings

By adulthood, the presence of fillings is no more than a crude marker of historic disease. Different clinicians will employ different approaches to deciding when and how to manage decay, so two people with the same experience of decay may have rather different patterns of restoration. Furthermore, the preferred approach to management has become progressively more conservative of tooth tissue over the years so the extent, size and presence of fillings may also reflect the point in history when they were first provided. In addition, restorations that look identical to fillings for decay may have been provided for other reasons such as tooth wear, fractures or even aesthetics. Nevertheless, the placement of a filling does require the tooth to be cut and shaped so the number of teeth and surfaces affected by fillings does give an indication of the extent of tooth tissue lost to disease and treatment over the years. In this section, two different measures are used; the number of teeth affected (filled for decay) and the number of surfaces affected. The latter gives a slightly more detailed indication of the extent of fillings across the mouth.

Tables 4.1.1 and 4.1.2 show the proportion of dentate adults in the population with fillings, the mean number of filled teeth, the number of surfaces affected (including crowns and roots) and the ratio of filled surfaces per filled tooth (this latter indicator gives an indication of the average size of restorations) for those with fillings. Overall, 84 per cent of dentate adults had at least one filled tooth, and amongst those with at least one filling the average number of teeth affected was 7.2. The average number of surfaces filled was 15.7 and the overall ratio of filled surfaces per restored tooth was 2.1.

Tables 4.1.1 and 4.1.2

Not surprisingly, there are strong age related patterns, as the damage from disease and treatment accumulates through life. The proportion of dentate adults with one or more fillings ranged from a low of 53 per cent among adults aged 16 to 24, to a high of 97 per cent among adults aged 45 to 54. Moreover, in all age groups above 45 around 90 per cent of adults had at least one filled tooth, whereas in younger age groups only those adults aged 35 to 44 approached this level of fillings (90 per cent). Similarly, younger adults had relatively low numbers of filled teeth; for example, adults aged 16 to 24, 25 to 34 and 35 to 44 with fillings had on average 3.4, 5.1 and 6.8 filled teeth respectively, compared with 9.1, 8.9 and 8.3 among adults aged 45 to 54, 55 to 64, and 65 to 74 respectively. It is not just the number of filled teeth that changes with age, but also the size of the fillings. The filled surfaces per restored tooth ratio rose from 1.6 per tooth in the 16 to 24 year olds to 2.6 per tooth in the 75 to 84 year olds.

Tables 4.1.1 and 4.1.2

Across all of these measures there is a consistent pattern of an increase in the various fillings up to age 45 and then a general plateau between 45 and 74. There is generally a reduction over the age of 75 in the number of teeth and surfaces filled, reflecting smaller numbers of available teeth, although the size of fillings is similar.

There were also variations in the number of filled teeth by sex, country and socio-economic classification of the household. Whereas 87 per cent of dentate women had at least one filled tooth, 82 per cent of dentate men did. In Northern Ireland, 91 per cent of dentate adults had at least one filling compared with 84 per cent of dentate adults in England. Finally, a smaller proportion of dentate adults from routine and manual occupation households had at least one filling (82 per cent) compared with dentate adults from intermediate occupation households (88 per cent).

Among those dentate adults with fillings, the average number of filled teeth also varied by country and socio-economic classification of the household, but not by sex. As for the overall proportion of adults with at least one filling, the mean number of filled teeth was higher amongst adults in Northern Ireland (8.7 filled teeth) than in England (7.1) and Wales (7.2). Adults from routine and manual occupation households had the lowest average number of filled teeth (6.4) whereas adults from managerial and professional occupation households had the highest (7.7).

Tables 4.1.1 and 4.1.2

Tables 4.1.3 and 4.1.4 show that there were also differences on these measures in terms of self-reported health behaviours. For example, a greater proportion of adults who said that they attended the dentist for a regular check-up had at least one filling (89 per cent) than those whose went for an occasional check-up (78 per cent) or only when they were having trouble with their teeth (77 per cent). Likewise dentate adults with fillings who said they attended for a regular check-up had the highest average number of teeth filled (8.0), the highest mean number of filled surfaces (18.1) and the highest ratio of filled surfaces also (2.2). Similar patterns were observed in terms of the time since last visit to the dentist with those adults who said that they had been most recently (within the previous 12 months) having the largest proportion of one or more teeth filled (88 per cent), average number of filled teeth (7.7), average number of filled surfaces (17.3) and ratio of filled surfaces per filled tooth (2.1). It was those adults who said that they had not been to the dentist in over ten years had the lowest proportion of one of more fillings (59 per cent), average number of filled teeth (4.8), average number of filled surfaces (9.2) and ratio of filled surfaces per filled tooth (1.7). Finally, those dentate adults who brushed their teeth once a day were more likely to have fillings (85 per cent) than those who said that they never brushed their teeth or brushed them less than once a day (76 per cent). The most regular tooth brushers (twice a day or more) had more filled teeth on average (7.4) and number of filled surfaces (16.2) than those who brushed their teeth least often (5.7 and 12.5 respectively).

Tables 4.1.3 and 4.1.4

4.1.2 Artificial crowns

An artificial crown is usually placed to try to ensure the structural integrity of a natural tooth which has been heavily filled, or perhaps even root filled, because of decay or other damage. In these circumstances the risk of the tooth itself breaking or the filling being lost or breaking down increases and a crown is placed to hold it together. However, in order to place a crown the tooth needs to be prepared, resulting in further loss of tooth tissue before the crown can be placed. A crown therefore generally indicates a high level of historic restoration and the

likelihood of a high and often complex maintenance need in the future. Crowns are relatively high cost restorations, made outside the mouth with skilled technical support.

Overall, 37 per cent of dentate adults had crowns. There was significant variation with age; only 5 per cent of the 16 to 24 year olds had crowns compared with 59 per cent of those aged 65 to 74. In every age group above 45 years over (with the exception of those aged 85 years and over) half of all adults had at least one crown, whereas those adults younger than 45 years did not have nearly the same proportion of crowns. This is a reflection of the high levels of accumulated restorative treatment in the generation of people born between the mid 1930s and mid 1960s who grew up in the post war years and the early days of the NHS. Although crowns were available in the NHS from an early stage, the availability of new technologies in the late 1970s saw a rapid increase in the use of artificial crowns from the early 1980s onwards[2] and it is likely that many of the crowns observed in 2009 originate from after this period.

Table 4.1.5

Dentate women (40 per cent) were more likely than dentate men (34 per cent) to have crowns and there was also some geographical variation with a smaller proportion of dentate adults in Northern Ireland with crowns (31 per cent) compared with England and Wales (both 37 per cent). Dentate adults from routine and manual households were less likely to have crowns (32 per cent) than those from intermediate occupation households (42 per cent).

Table 4.1.5

Table 4.1.6 shows that there were large differences in the proportions of dentate adults with crowns in terms of reported dental behaviour. Specifically, 44 per cent of those dentate adults who said that they attended the dentist for a regular check-up had one or more crowns compared with 7 per cent of those who said that they never went to the dentist. Likewise, dentate adults who had been to the dentist more recently, within the previous 12 months, had a greater proportion of crowns (43 per cent) than dentate adults who had not been in over ten years (8 per cent).

Table 4.1.6

As a relatively expensive item of dental care, a healthy and clean mouth would normally be considered a pre-requisite to placing an artificial crown, with simple tooth cleaning an essential first step to help ensure healthy tissues and the minimum of risk. Although there was a higher proportion of people with crowns amongst those who said they brushed twice a day or more (38 per cent), it perhaps should be of some concern that amongst those who said they brushed their teeth less than once a day, there were still 24 per cent with artificial crowns.

Table 4.1.6

Amongst those dentate adults with crowns, on average there were three per person, amounting to an estimated 47.6 million crowns across England, Wales and Northern Ireland. Once again there was a significant age variation, from 2.0 per person for those under 45 to 3.5 for the over 65 year olds.

Table 4.1.7

4.2 Total restorative burden

4.2.1 Number of restored teeth and surfaces

One way of estimating the scale of the maintenance need is to simply combine the total number of all teeth and tooth surfaces (crown and root surfaces) which have been restored by fillings, crowns or other restorations (for example, veneers). Such estimates can act as a marker both of historic disease and of treatment uptake in different sectors of the population and at all levels of complexity. These measures can also give us an indicator of who is likely to require the most complex and expensive maintenance in years to come.

Overall, 85 per cent of dentate adults had one or more restored teeth and table 4.2.1 illustrates the huge variation in the volume of restorative care which has accumulated in different age groups. The percentage of dentate adults with any restored teeth ranged from 56 per cent among those aged 16 to 24 to 91 per cent or more of dentate adults aged 35 or over.

Among those with restorations the overall average number of restored teeth is 8.6 and the average number of restored surfaces is 21.2. As with the data for fillings and crowns alone, there is a complex age related trend, with a plateau in the age groups 45 to 74. Specifically, amongst adults aged 16 to 24, 25 to 34 and 35 to 44 the average number of restored teeth are 3.4, 5.5 and 7.8 respectively, compared with 11.0, 11.4 and 11.0 in adults aged 45 to 54, 55 to 64, and 65 to 74 respectively. The same pattern is clear for the average number of restored surfaces per dentate adult. The mean numbers of restored teeth and surfaces reduces in older adults (75 and above), but so do the number of teeth and surfaces in total, as older people tend to have fewer teeth.

Tables 4.2.1 and 4.2.2

Figure 4.2.1 and Table 1 illustrate that although the number of restored teeth and surfaces increases with age, over the age of 55 the proportion of teeth affected is consistently between 47 per cent and 49 per cent and the proportion of surfaces is around 21 per cent to 23 per cent. These proportions are in stark contrast to the youngest groups in the population. For the 16 to 24 year olds only 7 per cent of teeth and 2 per cent of surfaces have been subject to restorative intervention, reflecting smaller fillings as well as fewer filled teeth. For those aged between 25 and 44, the figures are a little higher but still very low by comparison with those aged 45 and above.

Figure 4.2.1 and Table 1

Figure 4.2.1 Restored teeth and surfaces as a percentage of natural teeth and surface, by age

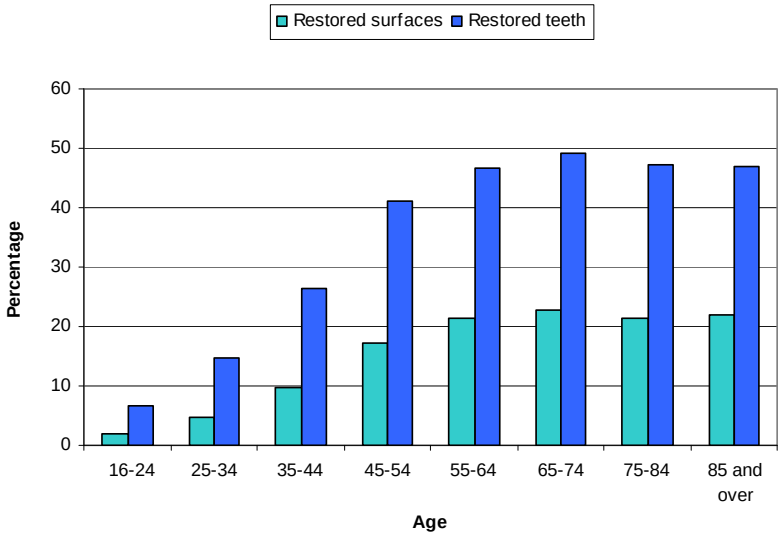


Table 1 Restored teeth and surfaces as a percentage of natural teeth and surface, by age

Dentate adults *England, Wales and Northern Ireland: 2009*

	Percentage of natural teeth that are restored	Percentage of natural surfaces that are restored	*Unweighted bases*	*Weighted bases (000s)*
All	30	13	*6,470*	*42,918*
Age				
16-24	7	2	*640*	*6,724*
25-34	15	5	*910*	*7,090*
35-44	26	10	*1,280*	*8,509*
45-54	41	17	*1,200*	*7,198*
55-64	47	21	*1,160*	*6,448*
65-74	49	23	*810*	*4,109*
75-84	47	21	*390*	*2,347*
85 and over	47	22	*80*	*494*

There were also marked variations by sex, geography and socio-economic classification of the household. Eighty-eight per cent of women had one or more restored tooth, compared with 83 per cent of men. Similarly, on average, women with restored teeth had more of them (8.8) and restored surfaces (21.7) than men (8.4 and 20.6 respectively).

Dentate adults in Northern Ireland were more likely to have restored teeth (92 per cent) compared with 85 per cent in England. Among those that had restored teeth, those in Northern Ireland had larger numbers of restored teeth (9.7) than those in England and Wales (8.6 each). Finally, dentate adults from routine and manual households were less likely than dentate adults from intermediate occupations to have restored teeth (84 per cent and 89 per cent respectively). Among those with restorations, dentate adults from managerial and professional households had more restorations on average (9.4) and surfaces restored (23.3) than those dentate adults from routine and manual occupation households (7.6 and 18.2 respectively).

Tables 4.2.1 and 4.2.2

As for fillings and crowns, dental attendance was also related to the levels of restorations. Those who reported attending the dentist for a regular check up were the most likely to have any restorations (90 per cent compared with 39 per cent of those who never went to the dentist). Among those with restorations, those who said that they attended a dentist for a regular check up had more restored teeth (9.7) and surfaces (24.7) on average than those who indicated that they never went to the dentist (3.4 and 7.6 respectively). Similarly, those who had been to a dentist more recently (within the previous 12 months) were more likely to have restorations and, among those who had restorations, had on average more restored teeth (9.4) and surfaces (23.6) than those who said that they had not been to the dentist in over ten years (5.1 and 10.2 respectively).

Table 4.2.3 and 4.2.4

Given the marked variation of complexity in the population, a degree of concentration of the restorative care might be expected. Table 4.2.5 groups the population into quartiles, groupings based on ranking adults by the number of restored teeth and restored surfaces, from those with none to those with the most. This allows adults with the lowest burden of fillings and crowns to be compared with those with the greatest. The difference is marked; people in the quartile with lowest burden have no more than 2 teeth and 3 surfaces affected, those in the quartile with the highest experience have a minimum of 12 teeth and 28 surfaces affected.

Table 4.2.5

4.2.2 The condition of restorations

Table 4.2.1 indicated that 85 per cent of the dentate population had a tooth affected by restoration and the analysis in this section is based on this subgroup. A restored tooth may be perfectly sound with no disease or signs of failure. Alternatively it might have secondary decay (decay which is immediately adjacent to previously placed fillings or fissure sealants) around the margins of the restoration, or it may have a restoration which is failing for a reason other than decay (unsound restoration), for example it may have broken or fallen out. In addition it might have some new decay which is completely unrelated to the restoration.

Among people with at least one restoration, 9 per cent had some secondary decay in their mouth, and 26 per cent had either secondary decay or an unsound restoration for some other reason, in other words the likely need for some sort of intervention. In a clinical setting, of course, a dentist may take radiographs which would detect additional problems not identifiable in a field setting.

Table 4.2.6

Failing (unsound) restorations were most common in the groups with the most restored teeth, so there was a significant age related risk of having a restored tooth needing some attention. Amongst dentate adults with restorations aged 16 to 24 the proportion with unsound restorations was 15 per cent compared with 33 per cent amongst those aged 75 to 84. Generally, the percentage of people with an unsound restoration (including secondary decay) increased with age up to the age of 45 and then levelled off (all age groups above 45 had at least 30 per cent unsound restorations). There were marked variations by sex, geography, and socio-economic classification of the household. Men had a greater proportion of both restorations with secondary decay (10 per cent) and unsound restorations (28 per cent) than women (8 per cent and 25 per cent respectively). The proportion of both was highest in Wales (15 per cent had restorations with secondary decay and 32 per cent

had unsound restorations) and lowest in Northern Ireland (5 per cent and 21 per cent respectively); in England 15 per cent of adults in the West Midlands SHA had restorations with secondary decay and in the South West SHA 38 per cent had unsound restorations. Finally, the highest levels of restorations with secondary decay were observed in dentate adults from routine and manual occupation households (11 per cent) and the lowest was in dentate adults from managerial and professional occupation households (7 percent). There was no significant variation between adults from different socio-economic classifications of the households in terms of the proportions with unsound restorations.

Table 4.2.6

Table 4.2.7 shows that irregular dental attendance and infrequent tooth brushing were also associated with unsound restorations. Among dentate adults with one or more restored teeth, 7 per cent of those who indicated that they attended for regular check-ups had restorations with secondary decay compared with 12 per cent of those who said that they only went to the dentist when they were having trouble with their teeth. Similarly, dentate adults with a least one restored teeth who had been to the dentist in the previous 12 months had a smaller proportion of restorations with secondary decay (7 per cent) than those who had not been for over ten years (18 percent). Finally, adults who reported that they brushed their teeth twice or more a day were less likely to have an unsound restoration than those who never cleaned their teeth or brushed less than once a day (8 per cent compared with 18 per cent). All of these patterns were also apparent in terms of the proportion of adults with unsound restorations.

Table 4.2.7

This is a simple snapshot at one point in time and, for many people, restored mouths are under regular review. It is not surprising that people who attend the dentist only with trouble are much more likely to have one or more restored teeth in need of attention if attention is unlikely to be sought.

4.3 Trends in restorations

Background

The future prospects of adults of different ages in 2009 can be deduced from past levels of dental disease and subsequent restoration. Younger adults, aged between 16 and 44, appear to have very good chances of retaining sound teeth in later life, as long as disease risks can be managed with the support of appropriate dental care. Those over 45 years of age have less good prospects, and their future treatment needs are likely to be very different, though managing disease risk will still be a priority.

All of the surveys in the ADHS series have been cross-sectional and there has been no attempt to follow cohorts of individuals over time. However, in order to explore likely future trends, the change over time among adults within each age group ('age cohort') has been followed from 1978; for example, the group of adults who were aged 25 to 34 in 1978, were 35 to 44 in 1988, 45 to 54 in 1998, and 56 to 65 in 2009 (taking into account the 11-year gap between the last two surveys). The criteria for restored teeth have changed little since the first survey in 1968[3], but data sets from past surveys are not accessible; here we rely on published data from the older surveys. The indicator used for these trends is different from that used elsewhere in this report: teeth that are restored but otherwise sound. The indicator for trends excludes failed restorations and does not take into account the condition of root surfaces. For the sake of brevity, references to restored teeth throughout the rest of this section refer therefore to this variable.

The mean values presented are based on all dentate adults. Comparisons are for dentate adults in England only to allow more precise comparisons in view of the larger sample size. Trends for Wales and Northern Ireland will be discussed separately in the country-specific reports in the ADHS 2009 series.

The sample size for England is much larger in the 2009 survey compared with previous Adult Dental Health Surveys; however the response rate to the current survey is lower. This reflects a wider tendency towards decreasing response rates in social surveys and means that there has been a greater dependence on weighting the 2009 data to control for response bias and variations between respondents, than in previous ADH Surveys. Any resulting differences should be minimal but trends rely on very precise estimates so some caution should be exercised when interpreting these results. In some places, a correction for age has been made in tables and text to correct for the interval between the 1998 survey and the current survey, which was eleven years, rather than ten years. Where this has been done, the actual ages of the respondents in each are one year more than indicated.

4.3.1 Trends in restorations

The average number of restored but otherwise sound teeth has fallen from 8.1 teeth in 1978 to 6.7 in 2009. In 1998, adults in the age groups 35 to 44 and 45 to 54 had the highest average number of restored teeth (9.6 and 10.9 respectively), in 2009 the average number of restorations was still highest in the same age cohorts, now aged 11 years older, but there was little net change in the number of restored teeth in either group.

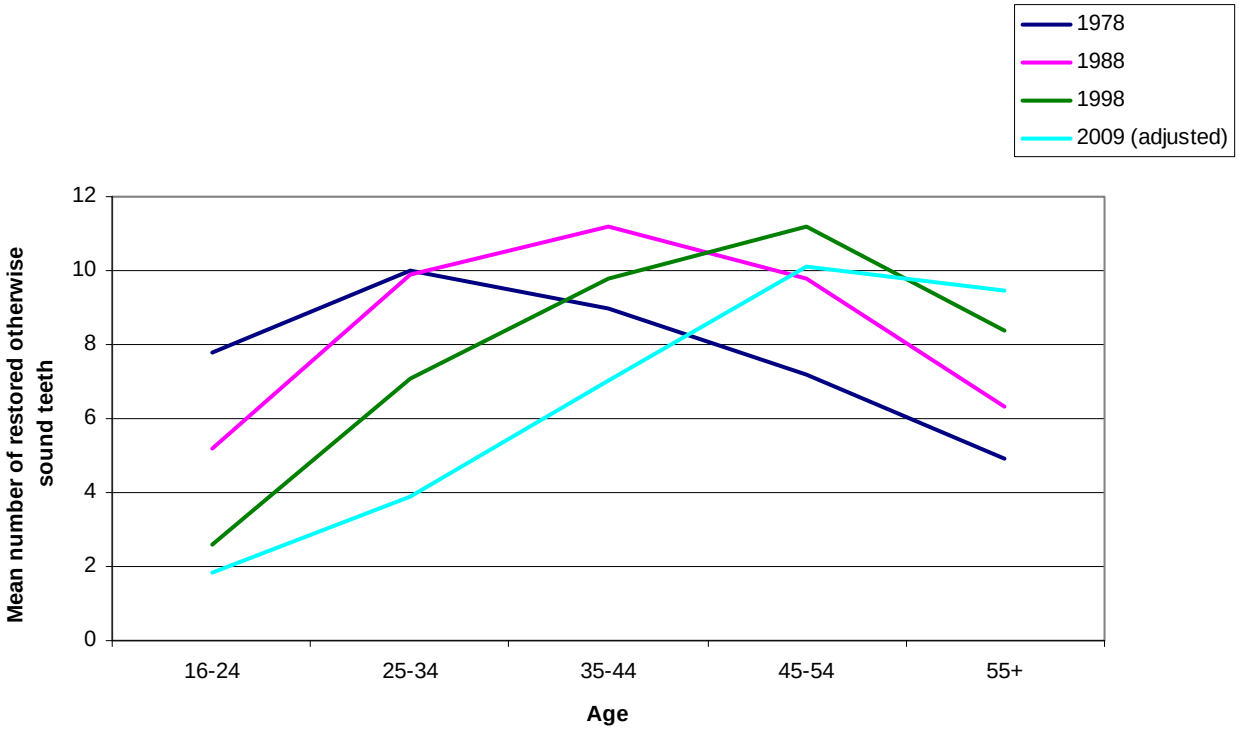
Table 4.3.1

All of the surveys in the ADHS series have been cross-sectional and there has been no attempt to follow cohorts of individuals over time. However, when taken together the survey series does allow for changes within generations to be tracked. Table 4.3.1 shows that adults aged 16 to 24 in 2009 had on average fewer restored teeth than their equivalents in 1998 (1.6 compared with 2.4). However the average number of restored teeth amongst those who were 16 to 24 in 1998 (2.4 on average) increased to 3.8 among those aged 25 to 34 in 2009 indicating more than one new restoration per mouth being placed in the previous decade. However, the next age cohort (aged 25 to 34 in 1998, 35 to 44 in 2009) did not see any measurable increase in the average number of restored teeth (6.9 in both years). These represent rather slow rates of accumulation of restorations. If sustained as these younger groups get older, this would result in far lower levels of restoration across a lifespan.

Following the slightly older groups through, those adults who were aged 16 to 24 in 1978 with an average of 7.8 restored teeth, had as 45 to 54 year olds in 2009 seen a gradual increase to 10.0 restored teeth on average. The older groups have shown sustained levels, starting from higher levels coming into adulthood, but little if any net increase as they have grown older. This is due to tooth loss negating any overall increase in newly restored teeth.

Table 4.3.1, Figure 4.3.1

Figure 4.3.1 Mean number of restored, otherwise sound, teeth by age: England, 1978-2009



4.4 Dentures and replacement teeth

Introduction

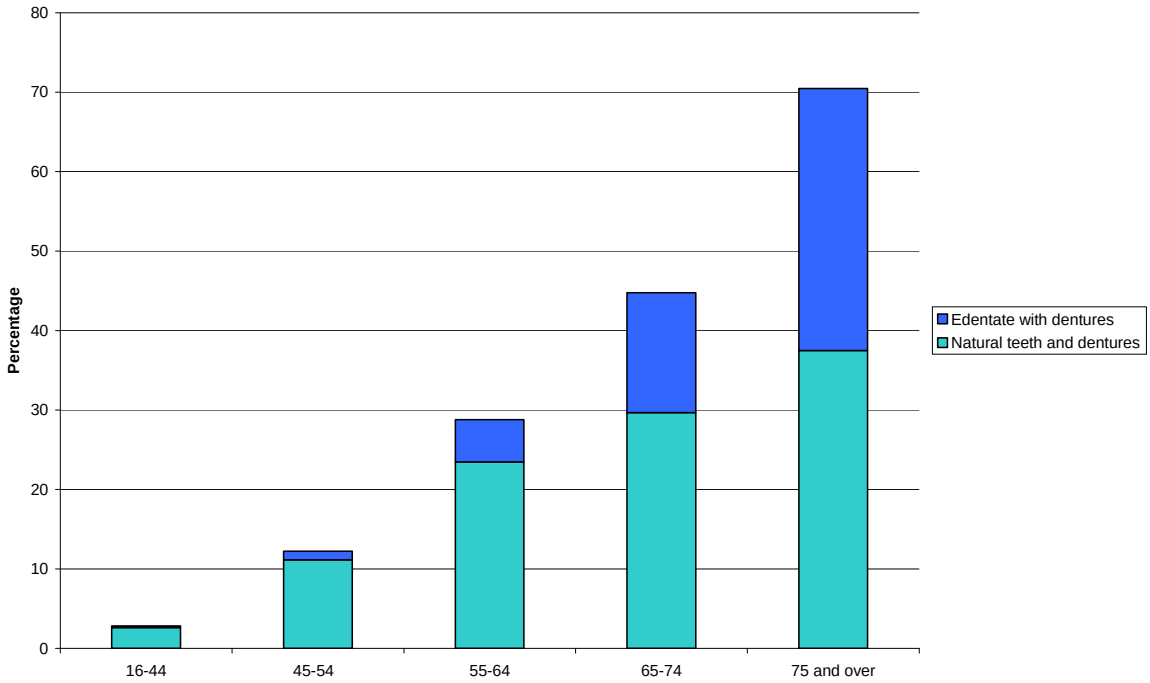
Measures of complexity do not stop with fillings, crowns and other restorations on the teeth. As damage accumulates from disease and treatment, teeth are ultimately lost. Loss of teeth can affect aesthetics and function so the replacement of missing teeth becomes important, adding another layer of complexity to treatment need. In previous Adult Dental Health Surveys the presence of dentures and bridges has been recorded, but in the years since the last survey, dental implants have also become a significant part of dental care. Because of the small numbers of adults in the youngest age groups who wear any sort of denture or bridge the age bands for those adults aged 16 to 44 were combined in the tables.

4.4.1 Dentures

Table 4.4.1 shows that amongst all adults nearly one in five (19 per cent) wore dentures. This includes the 13 per cent of all adults who also had natural teeth (partially dentate adults) and the 6 per cent of all adults who were edentate. As Figure 4.4.1 illustrates relatively few adults aged below 45 years wore dentures, but among older age groups, the proportion of people who did increased with age, up to 45 per cent of those aged 65 to 74 and 70 per cent of those aged 75 or over.

Table 4.4.1, Figure 4.4.1

Figure 4.4.1 Use of dentures by age



Among adults who retained some natural teeth, 1 per cent had a complete denture in one arch only (usually the upper) but some natural teeth in the opposing jaw, and a further 1 per cent had a complete denture in one arch and a partial denture in the other. In addition, 9 per cent wore a partial denture only, in one or both jaws. Amongst dentate adults older than 45 the use of a prosthetic replacement for missing teeth became increasingly common with increasing age. For example, around 2 per cent of dentate adults aged under 45 wore any type of denture compared with 7 per cent of those aged 45 to 54, 19 per cent of those aged 55 to 64, 29 per cent of those aged 65 to 74, and 57 per cent of those aged 75 and over.

There were also geographic differences, 15 per cent of dentate adults in Wales wore dentures compared with 9 per cent in Northern Ireland, and different socio-economic household classifications, 8 per cent of dentate adults from professional and managerial households wore dentures, compared with 16 per cent of those from routine and manual occupational households.

Table 4.4.2

4.4.2 Dental bridges

Dental bridges provide a viable and often preferable alternative to partial dentures, where the space to be filled is small enough and the surrounding teeth are in reasonable condition, as bridges are fixed in the mouth. Amongst dentate adults, 7 per cent had a dental bridge, again with statistically significant age variation; 3 per cent of adults aged 16 to 44 wore at least one dental bridge compared with 14 per cent of those aged 55 to 64 and 65 to 74. The only other measures where any significant variation in the presence of dental bridges was observed were measures of self reported health behaviour. A greater proportion of those dentate adults who said that they attended for regular check ups (9 per cent) had at least one dental bridge than those who said that they never go to the dentist (2 per cent). Likewise, 9 per cent of those dentate adults who indicated that they had been to the dentist in the previous 12 months had at least one dental bridge, compared with one per cent of those who said that they had not been in over ten years.

Tables 4.4.3 and 4.4.4

4.4.3 Dental implants

Dental implants are an increasingly mainstream part of dental care. Dentate participants were examined and the presence of implants and implant retained restorations recorded. Dental implants were found in 1 per cent of all those who were examined. It is however, possible that some implant retained restorations were not detected in field conditions so this may be a slight underestimate. There were statistically significant age related differences amongst dentate adults with older people not surprisingly being most likely to have implants; less than 0.5 per cent of adults aged 25 to 34 had at least one dental implant compared with 2 per cent of adults aged 65 to 74, 75 to 84 and 85 and over. There was also a significant social class variation; 2 per cent of dentate adults from intermediate occupation households had one or more implants compared with 1 per cent of dentate adults from both managerial and professional, and routine and manual occupation households.

Table 4.4.5

One per cent of all edentate respondents reported during the interview that they had had at least one implant in the past (data not shown in a Table). These edentate adults were not examined so they were not included in the count of those adults with dental implants.

4.5 Complexity and multiple conditions

Introduction

So far this report has discussed how the historical burden of dental disease and dental treatment, particularly that aimed at the management of dental caries (decay), has translated into a burden of maintenance over the longer term. In addition this report has also demonstrated how some people account for a disproportionate amount of that restorative burden. In other reports from the Adult Dental Health Survey 2009 series, *Disease and related disorders,* and *Urgent conditions,* disease prevalence and severity were reported, again demonstrating an uneven distribution of disease, including periodontal diseases as well as caries. This section describes an exploratory method of combining these disparate measures to give an indication of the complexity of present and historical disease and maintenance burden within the population. This will need further validation but the patterns observed and reported here suggest that it may be a useful way of capturing the complexity of dental needs using epidemiological data.

Complexity of treatment may be determined by a number of different factors. It may be that one disease, or its historical burden, is particularly severe. For example, even for a specialist prosthodontist, the treatment of an edentate arch opposed by natural teeth will often be particularly challenging. For the periodontist, a person with pocketing of 9mm or more in more than one quadrant would also have an acknowledged degree of complexity. In these examples, on the basis of each single measure, an individual would be considered to have 'treatment of a complex nature'. However, there are other people who, while they do not fall into this category of having complex needs based upon one condition, have several types of less severe current disease and previous disease experience which in combination may lead to a degree of complexity in management over the longer term.

In order to identify people with multiple, but less severe conditions, eight indicators have been identified, each reflecting some previous treatment or current disease. These are:

- Being in the top quintile for restored surfaces (based on all dentate adults; 32+ surfaces restored)
- Being in the top quintile for crowns (based on all dentate adults; 3 or more)
- Having any denture or bridge or implant
- Having one or more sextant with pocketing of 6mm or more or loss of attachment of 9mm or more (see *Disease and related disorders: a report from the Adult Dental Health Survey 2009*)
- Having any active decay of crown or root (see *Disease and related disorders: a report from the Adult Dental Health Survey 2009*)
- Being in the top quintile for active decay (based on adults with active decay; 8 or more surfaces with primary or secondary decay) (see *Disease and related disorders: a report from the Adult Dental Health Survey 2009*)
- PUFA[4] score greater than zero or an unrestorable tooth (see *Urgent conditions: a report from the Adult Dental Health Survey 2009*)
- Reporting at least one of the Oral Health Impact (OHIP-14)[5] problems as having been experienced very or fairly often over the last 12 months (see *Outcome and impact: a report from the Adult Dental Health Survey 2009*).

4.5.1 Overall complexity

Each dentate adult can have between zero and eight conditions (indicators of complexity). The criteria are based on the distributions of diseases, treatments and conditions observed, so each represents a condition or state that is found in a significant minority of the sample (between 6 per cent of adults being in the top quintile for decay and 31 percent of adults having any decay) which clinically represents a meaningful current or future need. Four of the criteria are related to disease, three to existing restorative treatment load and one to reported problems impacting on daily life. Individually none of these may present a particular clinical challenge, but in combination they may.

Table 4.5.1

The proportion of the dentate population with several of these indicators gives an indication of the degree of complexity of treatment and maintenance need within the population. A subject with five indicators of complexity is not five times more complex than one with one condition but a higher score is an indication of increasing complexity. By definition someone with five indicators will have some active disease, perhaps in combination with other diseases and/or superimposed on a heavily restored dentition or reported impacts on daily activities.

Over a third of dentate adults (37 per cent) had none of the eight indicators of complexity and a further 27 per cent had only one and 18 per cent had two. Three or more indicators would start to represent a fair degree of complexity, and this threshold was reached by a total of 19 per cent of the population. A total of 8 percent had four or more indicators and 3 per cent had five or more. Less than 0.5 per cent of people had either six, seven or eight indicators; in total this extreme complexity is found in 0.65 per cent of the dentate population. Across the whole populations of England, Wales and Northern Ireland this would equate to almost 280,000 people with six or more of these conditions.

Table 4.5.2

Unsurprisingly, complexity varied by age however the age differential was more pronounced above the threshold of two indicators. For example, 6 per cent of adults aged 16 to 24 had three or more indicators of complexity compared with 30 per cent of those aged 55 to 64 and 32 per cent of those aged 65 to 74. Table 4.5.3 shows a marked change in the level of complexity between those aged 45 and over compared with those aged 44 years or less. This increase was largely accounted for by those with one, two or three conditions, and the proportion with five or more conditions remained broadly consistent in those aged 45 to 74 years (around 4 to 5 per cent). The differences by age are statistically significant. Although age itself does not necessarily add to the degree of complexity, factors associated with age, for example increasing levels of ill health, numbers of medications or levels of disability may add extra complexity of providing care for older people.

Table 4.5.3

Complexity might be expected to increase with age, through wear and tear and the accumulated effects of disease and treatment. The question for the future is whether successive generations might be expected to show the same patterns as their elders. As can be seen from the trend sections above and also in the report *Disease and related disorders: a report from the Adult Dental Health Survey 2009*, the health of younger adults and their exposure to disease and treatment is distinctly better than observed in previous generations; those under 45 are starting from a healthier point. Consequently, there is now the

opportunity to ensure much improved health in the future. For the next 30 years the “baby boomers” are still likely to represent the group in greatest need of the most complex care as they age.

A high level of complexity (5+ conditions) was not associated with sex or geography, but the differences in levels of complexity when analysed by socio-economic classification of the household were significant. Dentate adults from routine and manual occupation households were less likely to have no indicators of complexity than those from managerial and professional occupation households (32 per cent compared with 42 per cent). In contrast, dentate adults from both routine and manual, and intermediate occupation households also had a higher proportion of people with five or more indicators (4 per cent in each), than adults from managerial and professional occupation households (2 per cent).

Table 4.5.3

Table 4.5.4 shows that dental complexity was also related to self-reported dental behaviour. For example, a greater proportion of dentate adults who said that they never go to the dentist had five of more indicators of complexity (6 per cent) than those adults who said that they go to the dentist for regular, or occasional check ups (2 per cent each). Similarly, 7 per cent of those dentate adults who said that they had not been to the dentist for more than 10 years had five of more indicators of complexity, compared with 2 per cent of those who said they had been in the previous 12 months. Five or more conditions were found in 11 per cent of people who never brush their teeth or brush them less than once a day compared 2 per cent who brush twice a day or more. Similarly, those people with visible plaque and those who were current smokers were significantly more likely to have five or more conditions than those dentate adults who had no visible plaque and those who were either ex-smokers or who had never smoked. These data on attendance, cleaning behaviours, cleaning effectiveness and smoking strongly suggest that practising preventive behaviours are associated with a lower level of complexity.

Table 4.5.4

Finally, a high level of dental anxiety, as measured by the MDAS scale[6] discussed further in *Access and barriers to care - a report from the Adult Dental Health Survey 2009*, was also associated with a high degree of complexity. Dentate adults with a score of 19 or more on MDAS (indicating extreme dental anxiety) had five or more indicators of complexity (5 per cent). This compares with 2 per cent of dentate adults who scored 0 to 9 on the MDAS (indicating low/no dental anxiety). Adults with high levels of anxiety are relatively likely to require additional help to have any form of dental care, and if they are more likely to have complex treatment needs the need for that help will be compounded.

Table 4.5.4

Multivariate analysis

The relationship between a high level of dental complexity and social and behavioural factors was further explored using a multivariate logistic regression. This allows the complex relationships between the factors associated with excellent oral health to be accounted for. The model included sex, age, country, socio-economic classification of the household, two measures of dental attendance (pattern of attendance and when last attended), frequency of brushing, a measure of dental anxiety, and smoking status. Analysis was carried out using a forward stepwise method. The final model included only those variables that were significantly associated with the outcome of interest. The risk of having five or more complex factors was increased with age, being a current smoker, attending only when having trouble

with teeth or never attending, less frequent tooth cleaning and having visible plaque. Interestingly, reported cleaning frequency and plaque both appear in the model, inferring that making the effort to clean is important but how well you clean as indicated by the presence of plaque is also independently important.

Table 4.5.5

It should be remembered that the measures of complexity reported here are only related to present and historical patterns of oral disease. Complexity of treatment and of maintenance care will be moderated by other factors related to each person. The moderating factors will include age and chronic illness and medication.

4.5.2 Dental health and complexity of treatment

In order to give a complete picture of the population and put complexity into perspective, Figures 4.5.1 and 4.5.2 and Table 4.5.6 illustrate the distribution by age within the whole population of different levels of complexity (3+ indicators and 5+ indicators). The measure of excellent oral health[7] is described in more detail in *Oral health and function – a report from the Adult Dental Health Survey 2009.*

Having 3 or more indicators would generally suggest either a fair degree of current need for dental care or the probability of significant future maintenance need or both. Those with 5 or more indicators of complexity represent a much smaller proportion of the population, but with a greater concentration of current and future needs and potentially the impact of more than one disease process. Both figures clearly show the concentration of complexity in the 45 and over age groups.

Figures 4.5.1 and 4.5.2 and Table 4.5.6

Figure 4.5.1 Dental health and complexity of treatment (5+ indicators) by age

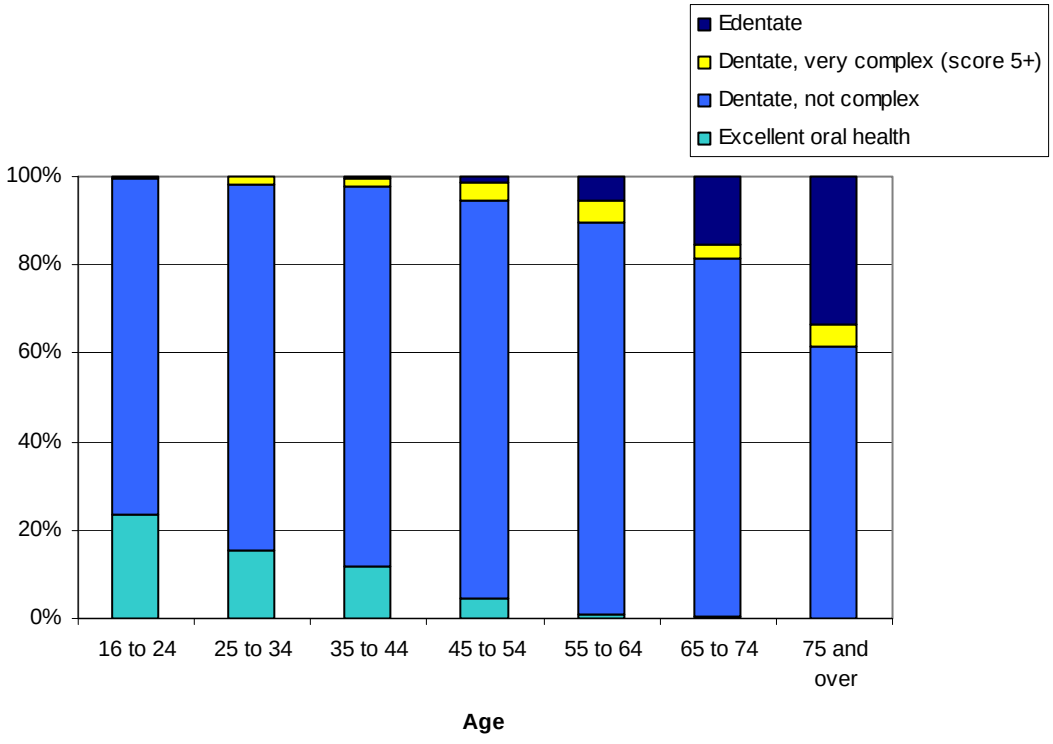
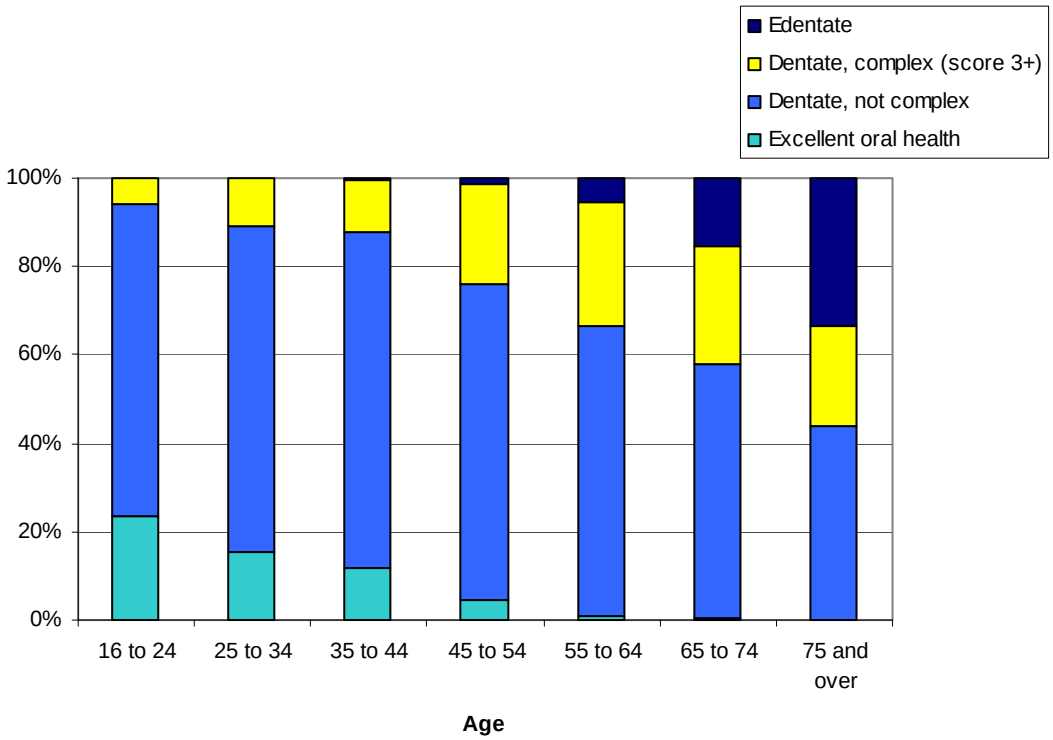


Figure 4.5.2 Dental health and complexity of treatment (3+ indicators) by age



Figures 4.5.3 and 4.5.4 translate these proportions to numbers of people in the population with each level of complexity, within the context of the decline in the dentate population with increasing age. Again, the most complex needs are associated with the older post war "baby-boomer" generation.

Figures 4.5.3 and 4.5.4

Figure 4.5.3 Dental health and complexity of treatment (5+ indicators) by age (Numbers in population)

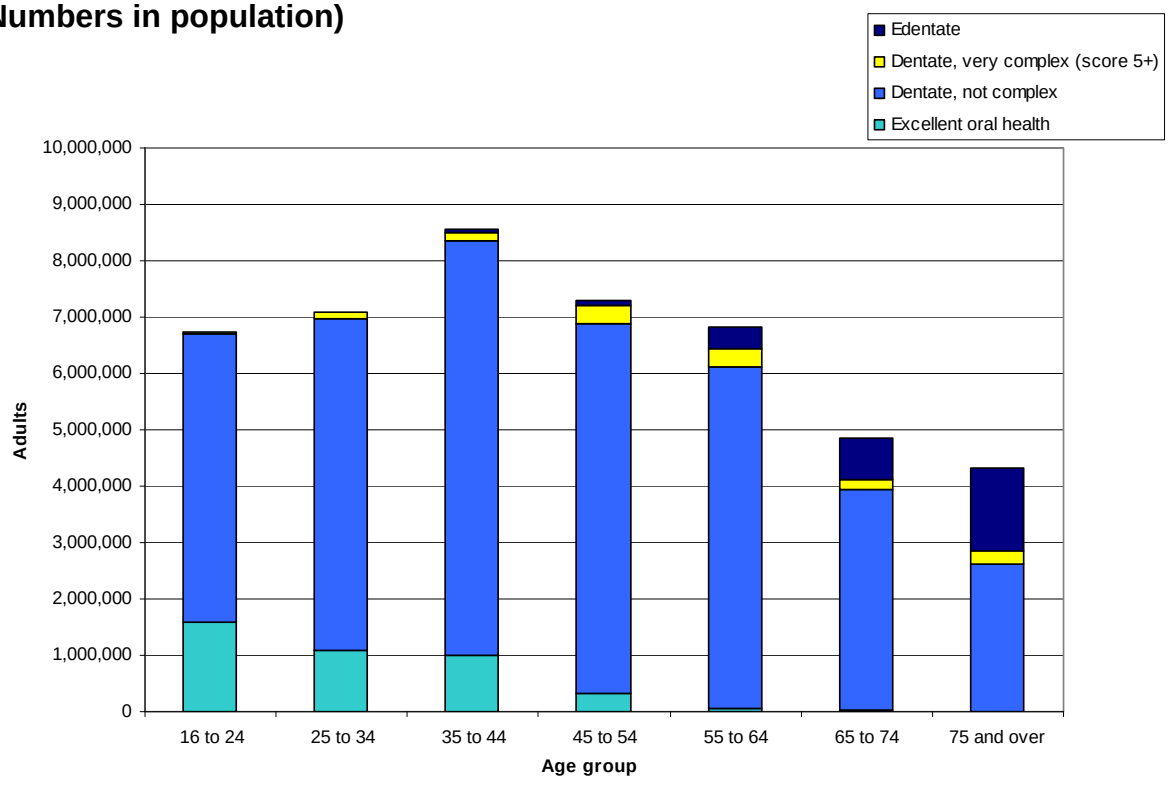
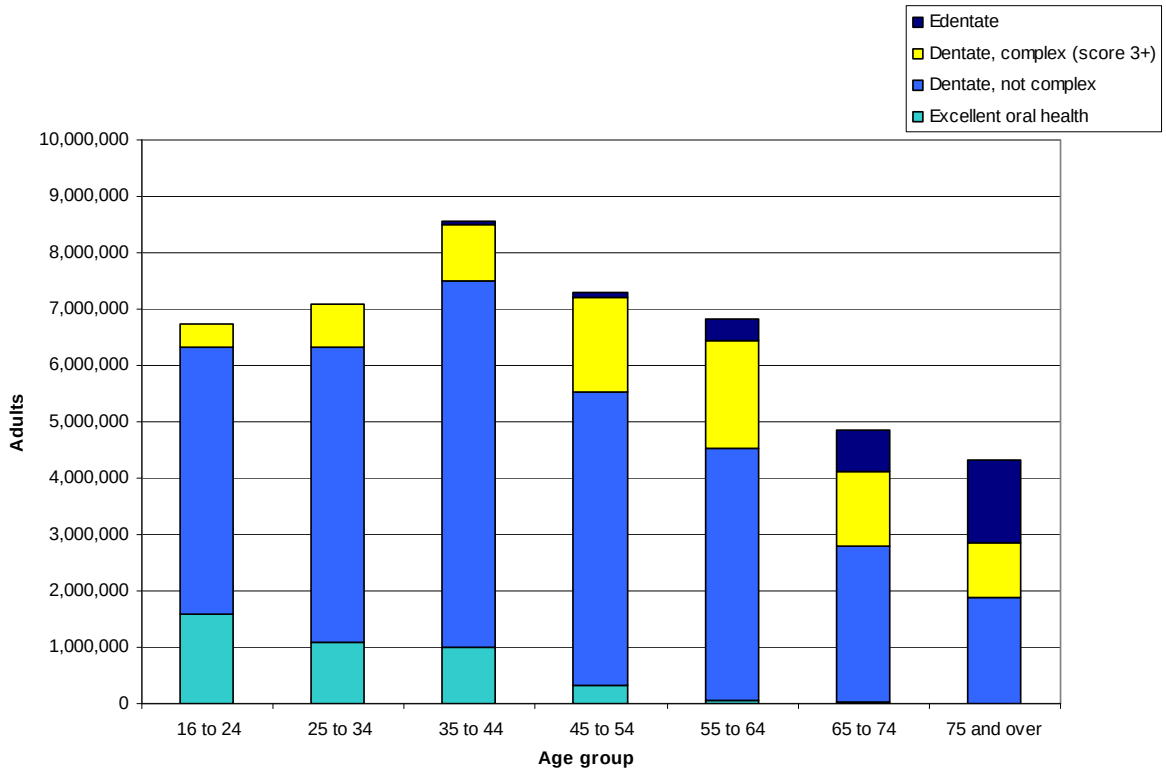


Figure 4.5.4 Dental health and complexity of treatment (3+ indicators) by age (Numbers in population)



Conclusion

Dental disease has lifelong impacts through the need for continued maintenance of treatments provided, even long after the disease has been eliminated. The heavy load resulting from high decay levels in previous generations is clearly illustrated by the large numbers of restorations in those currently aged 45 and over. The maintenance needs for their successors, those aged under 45, should become progressively lower provided that disease levels can be maintained at low levels and modern treatment philosophies are applied where treatment does become necessary.

The concentration of higher levels of disease in a relatively small number of people has been illustrated in *Disease and related disorders: a report from the Adult Dental health Survey 2009,* for both dental decay and periodontal disease, and a similar phenomenon is evident when looking at the distribution of restorations and restored surfaces.

Combining measures of restoration and disease into a crude complexity measure indicates the presence of a proportion of the population, most prevalent in late middle age but affecting all ages to some degree, who have combinations of conditions that would suggest particularly complex needs. This area needs further investigation but the regression models indicate the very strong association between relevant health behaviours and potential needs.

Notes and references

[1] Burke FJ, Lucarotti PS. (2009) How long do direct restorations placed within the general dental services in England and Wales survive? *Br Dent J*. Jan 10;206(1):E2; discussion 26-7

[2] Steele JG, Wassell RWW, Walls AWG. (2002) Crowns and other extra coronal restorations: Changing patterns and the need for quality. *Br Dent J*;192: 144-148.

[3] 1998 criteria - Teeth which include a restoration but are now sound with no visual or cavitated decay and no damage to the restoration.

1988 criteria - Teeth which include a restoration but are now sound with no cavitated decay and no damage to the restoration.

[4] PUFA (Pulp, Ulceration, Fistula, Abscess) is discussed in *Urgent Conditions – a report from the Adult Dental Health Survey 2009*

[5] Sheiham A, Tsakos G. (2007) *Oral health needs assessments*. In: Pine C, Harris R (eds). Community Oral Health. Mew Malden: Quintessence Publishing Co. Limited; 59–79.

[6] Humphris, Morrison, and Lindsay (1995) The Modified Dental Anxiety Scale: validation and United Kingdom norms. *Community Dent Health* Sep 12 (3) 143-50

[7] 21 or more natural teeth, 18 or more sound and untreated teeth and roots; no decay detected at any site; no periodontal pocketing of 4mm or more and no loss of attachment of 4mm or more; and no calculus or bleeding

Tables

Presentation of data

- Figures are rounded to the nearest whole value. This could have an impact on row or column percentages which may add to 99 per cent or 101 per cent.
- Where “0 per cent” is shown in a table, this indicates that fewer than 0.5 per cent of people gave this answer. Instances where no answers for a particular response were given are indicated in the tables by '-'.
- A few respondents did not answer some questions. These ‘*no answers*’ have been excluded from the analysis. Tables that describe the same population have slightly varying bases.
- The individual figures for unweighted sample sizes are rounded to the nearest 10 cases and may not add up to the figures shown in the totals.
- Small bases are associated with relatively high sampling errors and this affects the reliability of estimates. In general, percentage distribution is shown if the base is 30 or more. Where estimates are considered unreliable due to relatively high sampling error, figures in the tables are presented with a turquoise shaded background.

Table 4.1.1 Fillings (crown and root surfaces) by characteristics of dentate adults

Dentate adults — *England, Wales and Northern Ireland: 2009*

Characteristics of dentate adults	Percentage with one or more fillings*	*Unweighted bases*	*Weighted bases (000s)*
All	84	*6,470*	*42,918*
Age			
16-24	53	*640*	*6,724*
25-34	75	*910*	*7,090*
35-44	90	*1,280*	*8,509*
45-54	97	*1,200*	*7,198*
55-64	96	*1,160*	*6,448*
65-74	94	*810*	*4,109*
75-84	91	*390*	*2,347*
85 and over	88	*80*	*494*
Sex			
Men	82	*2,960*	*21,069*
Women	87	*3,510*	*21,849*
Country			
England	84	*5,620*	*39,420*
Wales	86	*420*	*2,204*
Northern Ireland	91	*430*	*1,295*
English Strategic Health Authority			
North East	85	*570*	*1,924*
North West	88	*600*	*5,218*
Yorkshire & The Humber	84	*500*	*3,912*
East Midlands	80	*710*	*3,382*
West Midlands	86	*490*	*3,973*
East Of England	82	*650*	*4,452*
London	79	*400*	*6,016*
South East Coast	84	*450*	*3,314*
South Central	81	*610*	*3,204*
South West	89	*660*	*4,026*
Socio-economic classification of household [1]			
Managerial and professional occupations	85	*2,590*	*16,923*
Intermediate occupations	88	*1,180*	*7,797*
Routine and manual occupations	82	*2,020*	*13,612*

* crowns and roots

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Table 4.1.2 Mean number of fillings (crown and root surfaces) by characteristics of dentate adults

Dentate adults with one or more filling — *England, Wales and Northern Ireland: 2009*

Characteristics of dentate adults	Mean number of filled teeth	Mean number of filled surfaces	Ratio of filled surfaces per filled tooth	*Unweighted bases*	*Weighted bases (000s)*
All	7.2	15.7	2.1	*5,710*	*36,099*
Age					
16-24	3.4	5.6	1.6	*360*	*3,560*
25-34	5.1	9.2	1.7	*710*	*5,331*
35-44	6.8	13.3	1.9	*1,180*	*7,651*
45-54	9.1	20.2	2.2	*1,170*	*6,974*
55-64	8.9	21.3	2.3	*1,110*	*6,159*
65-74	8.3	20.9	2.5	*760*	*3,847*
75-84	6.9	17.8	2.6	*360*	*2,142*
85 and over	6.0	15.6	2.5	*70*	*436*
Sex					
Men	7.1	15.6	2.1	*2,570*	*17,191*
Women	7.3	15.9	2.0	*3,140*	*18,908*
Country					
England	7.1	15.6	2.1	*4,930*	*33,012*
Wales	7.2	15.7	2.0	*370*	*1,906*
Northern Ireland	8.7	19.8	2.2	*400*	*1,181*
English Strategic Health Authority					
North East	6.7	14.5	2.1	*510*	*1,626*
North West	7.3	16.0	2.1	*540*	*4,589*
Yorkshire & The Humber	6.9	15.2	2.1	*440*	*3,278*
East Midlands	6.9	15.2	2.0	*610*	*2,718*
West Midlands	6.9	15.7	2.1	*440*	*3,404*
East Of England	7.0	15.7	2.0	*550*	*3,669*
London	6.7	13.4	1.9	*330*	*4,751*
South East Coast	6.9	15.1	2.1	*400*	*2,789*
South Central	8.0	17.8	2.1	*520*	*2,603*
South West	7.7	17.8	2.1	*610*	*3,586*
Socio-economic classification of household [1]					
Managerial and professional occupations	7.7	17.1	2.1	*2,320*	*14,400*
Intermediate occupations	7.4	16.3	2.1	*1,080*	*6,842*
Routine and manual occupations	6.4	13.9	2.0	*1,740*	*11,228*

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

Table 4.1.3 Fillings (crowns and root surfaces) by reported dental behaviour

Dentate adults	*England, Wales and Northern Ireland: 2009*		
Reported dental behaviour	**Percentage with one or more fillings***	***Unweighted bases***	***Weighted bases (000s)***
All	84	*6,470*	*42,918*
Dental attendance			
Regular check up	89	*4,380*	*26,817*
Occasional check up	78	*550*	*4,278*
Only with trouble	77	*1,450*	*11,063*
Never goes to the dentist	38	*80*	*710*
Time since last dental visit [1]			
Less than 1 year	88	*4,960*	*31,309*
Between 1 and 5 years	80	*970*	*7,393*
Over 5 up to 10 years	73	*260*	*2,068*
Over 10 years	59	*200*	*1,425*
Frequency of teeth cleaning			
Twice a day or more	84	*4,820*	*31,782*
Once a day	85	*1,450*	*9,704*
Never/less than once a day	76	*180*	*1,321*

* crowns and roots

[1] Excludes people who had never been to dentist

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

Table 4.1.4 Mean number of fillings (crowns and root surfaces) by reported dental behaviour

Dentate adults with one or more filling — *England, Wales and Northern Ireland: 2009*

Reported dental behaviour	Mean number of filled teeth	Mean number of filled surfaces	Ratio of filled surfaces per filled tooth	*Unweighted bases*	*Weighted bases (000s)*
All	7.2	15.7	2.1	*5,710*	*36,099*
Dental attendance					
Regular check up	8.0	18.1	2.2	*4,040*	*23,874*
Occasional check up	6.3	12.9	1.9	*460*	*3,354*
Only with trouble	5.4	10.6	1.9	*1,170*	*8,570*
Never goes to the dentist	2.9	5.4	1.8	*40*	*267*
Time since last dental visit [1]					
Less than 1 year	7.7	17.3	2.1	*4,540*	*27,572*
Between 1 and 5 years	5.6	11.2	1.9	*810*	*5,890*
Over 5 up to 10 years	5.8	10.7	1.8	*200*	*1,514*
Over 10 years	4.8	9.2	1.7	*130*	*847*
Frequency of teeth cleaning					
Twice a day or more	7.4	16.2	2.1	*4,270*	*26,796*
Once a day	6.7	14.6	2.1	*1,280*	*8,223*
Never/less than once a day	5.7	12.5	2.0	*150*	*1,000*

[1] Excludes people who had never been to dentist

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

Table 4.1.5 Crowns by characteristics of dentate adults

Dentate adults — *England, Wales and Northern Ireland: 2009*

Characteristics of dentate adults	Percentage with one or more crowns	*Unweighted bases*	*Weighted bases (000s)*
All	37	*6,470*	*42,918*
Age			
16-24	5	*640*	*6,724*
25-34	15	*910*	*7,090*
35-44	34	*1,280*	*8,509*
45-54	55	*1,200*	*7,198*
55-64	58	*1,160*	*6,448*
65-74	59	*810*	*4,109*
75-84	53	*390*	*2,347*
85 and over	41	*80*	*494*
Sex			
Men	34	*2,960*	*21,069*
Women	40	*3,510*	*21,849*
Country			
England	37	*5,620*	*39,420*
Wales	37	*420*	*2,204*
Northern Ireland	31	*430*	*1,295*
English Strategic Health Authority			
North East	31	*570*	*1,927*
North West	39	*600*	*5,204*
Yorkshire & The Humber	35	*500*	*1,924*
East Midlands	32	*710*	*5,218*
West Midlands	37	*490*	*3,912*
East Of England	38	*650*	*3,382*
London	37	*400*	*3,973*
South East Coast	40	*450*	*4,452*
South Central	41	*610*	*6,016*
South West	37	*660*	*3,314*
Socio-economic classification of household [1]			
Managerial and professional occupations	39	*2,590*	*16,923*
Intermediate occupations	42	*1,180*	*7,797*
Routine and manual occupations	32	*2,020*	*13,612*

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

Table 4.1.6 Crowns by reported dental behaviour

Dentate adults — *England, Wales and Northern Ireland: 2009*

Reported dental behaviour	Percentage with one or more crowns	*Unweighted bases*	*Weighted bases (000s)*
All	37	*6,470*	*42,918*
Dental attendance			
Regular check up	44	*4,380*	*26,817*
Occasional check up	31	*550*	*4,278*
Only with trouble	23	*1,450*	*11,063*
Never goes to the dentist	7	*80*	*710*
Time since last dental visit [1]			
Less than 1 year	43	*4,960*	*31,309*
Between 1 and 5 years	24	*970*	*7,393*
Over 5 up to 10 years	17	*260*	*2,068*
Over 10 years	8	*200*	*1,425*
Frequency of teeth cleaning			
Twice a day or more	38	*4,820*	*31,782*
Once a day	34	*1,450*	*9,704*
Never/less than once a day	24	*180*	*1,321*

[1] Excludes people who had never been to dentist

Table 4.1.7 Mean number of crowns by characteristics of dentate adults

Dentate adults with one or more crowns — *England, Wales and Northern Ireland: 2009*

Characteristics of dentate adults	Mean number of crowns	*Unweighted bases*	*Weighted bases (000s)*
All	3.0	*2,630*	*15,833*
Age			
16-44	2.0	*630*	*4,281*
45-64	3.3	*1,300*	*7,704*
65 and over	3.5	*700*	*3,848*
Sex			
Men	3.0	*1,130*	*7,193*
Women	3.1	*1,490*	*8,640*
Country			
England	3.0	*2,310*	*14,618*
Wales	2.8	*170*	*813*
Northern Ireland	2.5	*150*	*402*
English Strategic Health Authority			
North East	2.7	*200*	*601*
North West	2.7	*260*	*2,058*
Yorkshire & The Humber	3.3	*190*	*1,361*
East Midlands	2.9	*270*	*1,080*
West Midlands	2.9	*200*	*1,476*
East Of England	3.3	*270*	*1,683*
London	3.2	*160*	*2,220*
South East Coast	3.1	*200*	*1,339*
South Central	3.3	*290*	*1,300*
South West	2.8	*270*	*1,499*
Socio-economic classification of household [1]			
Managerial and professional occupations	3.3	*1,140*	*6,639*
Intermediate occupations	2.9	*520*	*3,247*
Routine and manual occupations	2.7	*700*	*4,328*

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Table 4.2.1 Restored teeth, including roots, by characteristics of dentate adults

Dentate adults *England, Wales and Northern Ireland: 2009*

Characteristics of dentate adults	Percentage with one or more restored teeth*	*Unweighted bases*	*Weighted bases (000s)*
All	85	*6,470*	*42,918*
Age			
16-24	56	*640*	*6,724*
25-34	76	*910*	*7,090*
35-44	91	*1,280*	*8,509*
45-54	97	*1,200*	*7,198*
55-64	96	*1,160*	*6,448*
65-74	96	*810*	*4,109*
75-84	93	*390*	*2,347*
85 and over	92	*80*	*494*
Sex			
Men	83	*2,960*	*21,069*
Women	88	*3,510*	*21,849*
Country			
England	85	*5,620*	*39,420*
Wales	87	*420*	*2,204*
Northern Ireland	92	*430*	*1,295*
English Strategic Health Authority			
North East	86	*570*	*1,924*
North West	89	*600*	*5,218*
Yorkshire & The Humber	85	*500*	*3,912*
East Midlands	81	*710*	*3,382*
West Midlands	86	*490*	*3,973*
East Of England	84	*650*	*4,452*
London	80	*400*	*6,016*
South East Coast	86	*450*	*3,314*
South Central	83	*610*	*3,204*
South West	90	*660*	*4,026*
Socio-economic classification of household [1]			
Managerial and professional occupations	86	*2,590*	*16,923*
Intermediate occupations	89	*1,180*	*7,797*
Routine and manual occupations	84	*2,020*	*13,612*

* crowns and roots

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Table 4.2.2 Mean number of restored teeth and surfaces, including roots, by characteristics of dentate adults

Dentate adults with one or more restored teeth (including roots) *England, Wales and Northern Ireland: 2009*

Characteristics of dentate adults	Mean number of restored teeth	Mean number of restored surfaces	*Unweighted bases*	*Weighted bases (000s)*
All	8.6	21.2	*5,780*	*36,629*
Age				
16-24	3.4	6.0	*380*	*3,747*
25-34	5.5	10.5	*720*	*5,415*
35-44	7.8	16.8	*1,190*	*7,726*
45-54	11.0	27.4	*1,170*	*6,974*
55-64	11.4	31.0	*1,120*	*6,202*
65-74	11.0	30.5	*780*	*3,931*
75-84	9.1	24.6	*370*	*2,179*
85 and over	7.6	20.7	*70*	*454*
Sex				
Men	8.4	20.6	*2,600*	*17,445*
Women	8.8	21.7	*3,180*	*19,184*
Country				
England	8.6	21.1	*5,000*	*33,514*
Wales	8.6	20.3	*380*	*1,926*
Northern Ireland	9.7	24.1	*410*	*1,189*
English Strategic Health Authority				
North East	7.6	18.8	*510*	*1,657*
North West	8.6	21.6	*540*	*4,666*
Yorkshire & The Humber	8.3	20.5	*440*	*3,333*
East Midlands	8.2	20.3	*610*	*2,748*
West Midlands	8.5	21.3	*440*	*3,430*
East Of England	8.6	21.8	*560*	*3,722*
London	8.5	18.3	*330*	*4,822*
South East Coast	8.4	20.9	*410*	*2,847*
South Central	9.6	24.8	*530*	*2,671*
South West	9.1	23.3	*620*	*3,617*
Socio-economic classification of household [1]				
Managerial and professional occupations	9.4	23.3	*2,340*	*14,570*
Intermediate occupations	8.8	21.9	*1,200*	*6,978*
Routine and manual occupations	7.6	18.2	*1,770*	*11,406*

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

Table 4.2.3 Restored teeth, including roots, by reported dental behaviour

Dentate adults — *England, Wales and Northern Ireland: 2009*

Reported dental behaviour	Percentage with one or more restored teeth*	*Unweighted bases*	*Weighted bases (000s)*
All	85	*6,470*	*42,918*
Dental attendance			
Regular check up	90	*4,380*	*26,817*
Occasional check up	79	*550*	*4,278*
Only with trouble	79	*1,450*	*11,063*
Never goes to the dentist	39	*80*	*710*
Time since last dental visit [1]			
Less than 1 year	89	*4,960*	*31,309*
Between 1 and 5 years	81	*970*	*7,393*
Over 5 up to 10 years	74	*260*	*2,068*
Over 10 years	60	*200*	*1,425*
Frequency of teeth cleaning			
Twice a day or more	85	*4,820*	*31,782*
Once a day	86	*1,450*	*9,704*
Never/less than once a day	78	*180*	*1,321*

* crowns and roots

[1] Excludes people who had never been to dentist

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

Table 4.2.4 Mean number of restored teeth/surfaces, including roots, by reported dental behaviour

Dentate adults with one or more restored teeth (including roots) *England, Wales and Northern Ireland: 2009*

Reported dental behaviour	Mean number of restored teeth	Mean number of restored surfaces	*Unweighted bases*	*Weighted bases (000s)*
All	8.6	21.2	*5,780*	*36,629*
Dental attendance				
Regular check up	9.7	24.7	*4,080*	*24,155*
Occasional check up	7.5	17.4	*470*	*3,393*
Only with trouble	6.2	13.5	*1,200*	*8,770*
Never goes to the dentist	3.4	7.6	*40*	*276*
Time since last dental visit [1]				
Less than 1 year	9.4	23.6	*4,600*	*27,976*
Between 1 and 5 years	6.5	14.3	*820*	*5,984*
Over 5 up to 10 years	6.3	12.4	*210*	*1,529*
Over 10 years	5.1	10.2	*130*	*853*
Frequency of teeth cleaning				
Twice a day or more	8.9	21.9	*4,320*	*27,173*
Once a day	7.9	19.5	*1,300*	*8,348*
Never/less than once a day	6.6	16.4	*150*	*1,028*

[1] Excludes people who had never been to dentist

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

Table 4.2.5 Distribution of restored teeth and surfaces, including roots, by characteristics of dentate adults

Dentate adults

Characteristics of dentate adults	Number of restored teeth			Number of restored surfaces			*Unweighted bases*	*Weighted bases (000s)*
	25th percentile	Median	75th percentile	25th percentile	Median	75th percentile		
All	2	7	12	3	13	28	*6,470*	*42,918*
Age								
16-24	0	1	3	0	1	5	*640*	*6,724*
25-34	1	3	6	1	5	12	*910*	*7,090*
35-44	3	7	10	5	12	21	*1,280*	*8,509*
45-54	7	11	14	13	24	37	*1,200*	*7,198*
55-64	7	11	15	13	27	43	*1,160*	*6,448*
65-74	6	11	15	13	27	42	*810*	*4,109*
75-84	4	8	12	8	21	32	*390*	*2,347*
85 and over	2	7	11	5	14	27	*80*	*494*
Sex								
Men	2	6	11	2	12	26	*2,960*	*21,069*
Women	3	7	12	4	14	29	*3,510*	*21,849*
Country								
England	2	7	11	3	13	28	*5,620*	*39,420*
Wales	3	7	11	4	13	27	*420*	*2,204*
Northern Ireland	5	9	13	7	19	32	*430*	*1,295*
English Strategic Health Authority								
North East	2	6	10	3	11	24	*570*	*1,924*
North West	3	7	12	5	15	29	*600*	*5,218*
Yorkshire & The Humber	2	7	11	4	12	26	*500*	*3,912*
East Midlands	1	6	11	2	11	26	*710*	*3,382*
West Midlands	2	6	11	4	12	29	*490*	*3,973*
East Of England	2	6	11	3	11	29	*650*	*4,452*
London	1	5	11	2	9	21	*400*	*6,016*
South East Coast	2	7	12	3	13	28	*450*	*3,314*
South Central	2	8	13	3	15	32	*610*	*3,204*
South West	3	8	12	4	16	32	*660*	*4,026*
Socio-economic classification of household [1]								
Managerial and professional occupations	3	8	13	4	15	31	*2,590*	*16,923*
Intermediate occupations	3	7	12	5	14	30	*1,180*	*7,797*
Routine and manual occupations	2	6	10	2	10	23	*2,020*	*13,612*

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Table 4.2.6 Condition of restorations by characteristics of dentate adults

Dentate adults with one or more restored teeth (including roots) — *England, Wales and Northern Ireland: 2009*

Characteristics of dentate adults with one or more restored teeth	Percentage with restorations with secondary decay (including roots)	Percentage with secondary decay or unsound restorations (including roots)	*Unweighted bases*	*Weighted bases (000s)*
All	9	26	*5,780*	*36,629*
Age				
16-24	7	15	*380*	*3,747*
25-34	10	22	*720*	*5,415*
35-44	8	24	*1,190*	*7,726*
45-54	9	30	*1,170*	*6,974*
55-64	8	32	*1,120*	*6,202*
65-74	8	30	*780*	*3,931*
75-84	13	33	*370*	*2,179*
85 and over	7	32	*70*	*454*
Sex				
Men	10	28	*2,600*	*17,445*
Women	8	25	*3,180*	*19,184*
Country				
England	8	26	*5,000*	*33,514*
Wales	15	32	*380*	*1,926*
Northern Ireland	5	21	*410*	*1,189*
English Strategic Health Authority				
North East	9	28	*510*	*1,657*
North West	7	24	*540*	*4,666*
Yorkshire & The Humber	9	26	*440*	*3,333*
East Midlands	7	28	*610*	*2,748*
West Midlands	15	33	*440*	*3,430*
East Of England	5	14	*560*	*3,722*
London	6	31	*330*	*4,822*
South East Coast	3	16	*410*	*2,847*
South Central	7	25	*530*	*2,671*
South West	14	38	*620*	*3,617*
Socio-economic classification of household [1]				
Managerial and professional occupations	7	24	*2,340*	*14,570*
Intermediate occupations	9	26	*1,200*	*6,978*
Routine and manual occupations	11	28	*1,770*	*11,406*

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

Table 4.2.7 Condition of restorations by reported dental behaviour

Dentate adults with one or more restored teeth (including roots) *England, Wales and Northern Ireland: 2009*

Reported dental behaviour of adults with one or more restored teeth	Percentage with restorations with secondary decay (including roots)	Percentage with secondary decay or unsound restorations (including roots)	*Unweighted bases*	*Weighted bases (000s)*
All	9	26	*5,780*	*36,629*
Dental attendance				
Regular check up	7	24	*4,080*	*24,155*
Occasional check up	10	29	*470*	*3,393*
Only with trouble	12	31	*1,200*	*8,770*
Never goes to the dentist	25	38	*40*	*276*
Time since last dental visit [1]				
Less than 1 year	7	25	*4,600*	*27,976*
Between 1 and 5 years	11	31	*820*	*5,984*
Over 5 up to 10 years	13	33	*210*	*1,529*
Over 10 years	18	38	*130*	*853*
Frequency of teeth cleaning				
Twice a day or more	8	25	*4,320*	*27,173*
Once a day	10	28	*1,300*	*8,348*
Never/less than once a day	18	36	*150*	*1,028*

[1] Excludes people who had never been to dentist

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

Table 4.3.1 Mean number of restored, otherwise sound teeth by age, England: 1978-2009

Dentate adults *England: 1978-2009*

	Mean number of restored otherwise sound teeth					
	1988 criteria			1998 criteria		
	1978	1988	1998	1998	2009 (adjusted)*	*2009 (unadjusted)*
All	8.1	8.4	8.0	7.8	6.8	*6.7*
Age						
16-24	7.8	5.2	2.6	2.4	1.7	*1.6*
25-34	10.0	9.9	7.1	6.9	3.8	*3.6*
35-44	9.0	11.2	9.8	9.6	6.9	*6.5*
45-54	7.2	9.8	11.2	10.9	10.0	*9.9*
55-64	4.9	6.3	8.4	9.0	10.2	*10.2*
65 and over				7.7	8.6	*8.7*

*age groups adjusted - see Section 4.3

Table 4.4.1 Dentures by characteristics of adults

All adults — *England, Wales and Northern Ireland: 2009*

Characteristics of adults		Natural teeth only	Natural teeth and dentures	Edentate with dentures	Edentate, no dentures	Percentage with dentures	*Unweighted bases*	*Weighted bases (000s)*
All	%	81	13	6	0	19	*11,380*	*45,621*
Age								
16-44	%	97	3	0	-	3	*4,590*	*22,349*
45-54	%	88	11	1	0	12	*2,040*	*7,449*
55-64	%	71	23	5	0	29	*1,960*	*6,675*
65-74	%	55	30	15	0	45	*1,530*	*4,729*
75 and over	%	29	37	33	1	70	*1,250*	*4,419*
Sex								
Men	%	83	12	5	0	17	*5,080*	*22,137*
Women	%	79	14	7	0	21	*6,290*	*23,484*
Country								
England	%	81	13	6	0	19	*9,660*	*41,790*
Wales	%	75	15	10	0	25	*1,000*	*2,437*
Northern Ireland	%	80	13	7	0	20	*720*	*1,394*
English Strategic Health Authority								
North East	%	77	15	8	0	23	*990*	*2,107*
North West	%	78	15	7	-	22	*970*	*5,568*
Yorkshire & The Humber	%	78	15	7	0	22	*1,020*	*4,247*
East Midlands	%	82	12	6	0	18	*1,130*	*3,614*
West Midlands	%	76	16	8	0	24	*880*	*4,357*
East Of England	%	85	11	4	0	15	*1,030*	*4,632*
London	%	87	9	4	0	13	*760*	*6,196*
South East Coast	%	82	13	5	-	18	*900*	*3,497*
South Central	%	86	12	2	0	14	*970*	*3,283*
South West	%	79	16	5	0	21	*1,010*	*4,288*
Socio-economic classification of household [1]								
Managerial and professional occupations	%	88	9	2	0	12	*4,030*	*16,459*
Intermediate occupations	%	81	14	5	0	19	*2,010*	*7,923*
Routine and manual occupations	%	73	17	10	0	27	*3,830*	*15,302*

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Table 4.4.2 Types of denture by characteristics of dentate adults

Dentate adults *England, Wales and Northern Ireland: 2009*

Characteristics of dentate adults		Natural teeth only	Partial denture in one arch	Partial dentures in both arches	Complete denture in one arch, partial in other	Complete denture in one arch only	*Unweighted bases*	*Weighted bases (000s)*
All	%	89	7	2	1	1	*6,470*	*42,918*
Age								
16-44	%	98	1	0	0	0	*2,840*	*22,323*
45-54	%	93	6	1	0	1	*1,200*	*7,198*
55-64	%	81	12	4	1	2	*1,160*	*6,448*
65-74	%	71	17	4	3	4	*810*	*4,109*
75 and over	%	43	27	11	11	7	*470*	*2,840*
Sex								
Men	%	89	7	2	1	1	*2,960*	*21,069*
Women	%	88	7	2	1	1	*3,510*	*21,849*
Country								
England	%	89	7	2	1	1	*5,620*	*39,420*
Wales	%	85	8	2	2	3	*420*	*2,204*
Northern Ireland	%	91	6	1	1	2	*430*	*1,295*
English Strategic Health Authority								
North East	%	87	8	1	1	2	*570*	*1,924*
North West	%	88	8	3	1	1	*600*	*5,218*
Yorkshire & The Humber	%	89	7	1	1	1	*500*	*3,912*
East Midlands	%	90	6	2	1	2	*710*	*3,382*
West Midlands	%	86	9	1	2	1	*490*	*3,973*
East Of England	%	91	5	3	1	1	*650*	*4,452*
London	%	92	4	2	1	1	*400*	*6,015*
South East Coast	%	87	7	2	2	2	*450*	*3,314*
South Central	%	90	6	1	2	1	*610*	*3,204*
South West	%	86	9	2	1	1	*660*	*4,026*
Socio-economic classification of household [1]								
Managerial and professional occupations	%	92	5	1	1	1	*2,590*	*16,923*
Intermediate occupations	%	87	8	2	1	2	*1,180*	*7,797*
Routine and manual occupations	%	84	9	3	1	2	*2,020*	*13,612*

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Table 4.4.3 Dental bridges by characteristics of dentate adults

Dentate adults — *England, Wales and Northern Ireland: 2009*

Characteristics of dentate adults	Percentage with at least one dental bridge	*Unweighted bases*	*Weighted bases (000s)*
All	7	*6,470*	*42,918*
Age			
16-44	3	*2,840*	*22,323*
45-54	10	*1,200*	*7,198*
55-64	14	*1,160*	*6,448*
65-74	14	*810*	*4,109*
75 and over	7	*470*	*2,840*
Sex			
Men	7	*2,960*	*21,069*
Women	8	*3,510*	*21,849*
Country			
England	7	*5,620*	*39,420*
Wales	6	*420*	*2,204*
Northern Ireland	6	*430*	*1,295*
English Strategic Health Authority			
North East	7	*570*	*1,924*
North West	8	*600*	*5,218*
Yorkshire & The Humber	6	*500*	*3,912*
East Midlands	7	*710*	*3,382*
West Midlands	8	*490*	*3,973*
East Of England	9	*650*	*4,452*
London	8	*400*	*6,016*
South East Coast	6	*450*	*3,314*
South Central	7	*610*	*3,204*
South West	7	*660*	*4,026*
Socio-economic classification of household [1]			
Managerial and professional occupations	8	*2,590*	*16,923*
Intermediate occupations	9	*1,180*	*7,797*
Routine and manual occupations	7	*2,020*	*13,612*

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Table 4.4.4 Dental bridges by reported dental behaviour

Dentate adults — *England, Wales and Northern Ireland: 2009*

Reported dental behaviour	Percentage with at least one dental bridge	*Unweighted bases*	*Weighted bases (000s)*
All	7	*6,470*	*42,918*
Dental attendance			
Regular check up	9	*4,380*	*26,817*
Occasional check up	5	*550*	*4,278*
Only with trouble	5	*1,450*	*11,063*
Never goes to the dentist	2	*80*	*710*
Time since last dental visit [1]			
Less than 1 year	9	*4,960*	*31,309*
Between 1 and 5 years	4	*970*	*7,393*
Over 5 up to 10 years	5	*260*	*2,068*
Over 10 years	1	*200*	*1,425*
Frequency of teeth cleaning			
Twice a day or more	8	*4,820*	*31,782*
Once a day	7	*1,450*	*9,704*
Never/less than once a day	5	*180*	*1,321*

[1] Excludes people who had never been to dentist

Table 4.4.5 Implants by characteristics of dentate adults

Dentate adults — *England, Wales and Northern Ireland: 2009*

Characteristics of dentate adults	Percentage with at least one implant	*Unweighted bases*	*Weighted bases (000s)*
All	1	*6,470*	*42,918*
Age			
16-24	1	*640*	*6,724*
25-34	0	*910*	*7,090*
35-44	1	*1,280*	*8,509*
45-54	1	*1,200*	*7,198*
55-64	1	*1,160*	*6,448*
65-74	2	*810*	*4,109*
75-84	2	*390*	*2,347*
85 and over	2	*80*	*494*
Sex			
Men	1	*2,960*	*21,069*
Women	1	*3,510*	*21,849*
Country			
England	1	*5,620*	*39,420*
Wales	0	*420*	*2,204*
Northern Ireland	1	*430*	*1,295*
English Strategic Health Authority			
North East	1	*570*	*1,924*
North West	0	*600*	*5,218*
Yorkshire & The Humber	1	*500*	*3,912*
East Midlands	1	*710*	*3,382*
West Midlands	2	*490*	*3,973*
East Of England	1	*650*	*4,452*
London	1	*400*	*6,016*
South East Coast	1	*450*	*3,314*
South Central	2	*610*	*3,204*
South West	0	*660*	*4,026*
Socio-economic classification of household [1]			
Managerial and professional occupations	1	*2,590*	*16,923*
Intermediate occupations	2	*1,180*	*7,797*
Routine and manual occupations	1	*2,020*	*13,612*

[1] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Table 4.5.1 Prevalence of complexity: individual conditions

Dentate adults *England, Wales and Northern Ireland: 2009*

Condition	Percentage with individual conditions
Restored surfaces: top quintile	21
Crowns: highest quintile	16
Denture/bridge/implant	20
One or more quadrant with pocketing of 6mm or more and/or loss of attachment of 9mm or more	9
Active (primary or secondary) decay in crown or root	31
Active decay: top quintile	6
PUFA score greater than zero and/or an unrestorable tooth	12
OHIP: at least one problem fairly or very often in last 12 months	16
Unweighted bases	*6,470*
Weighted bases (000s)	*42,918*

Table 4.5.2 Aggregated complexity scores

Dentate adults	*England, Wales and Northern Ireland: 2009*
Number of conditions [1]	
	%
0	37
1	27
2	18
3	10
4	5
5	2
6	0
7	0
8	0
Unweighted bases	*6,470*
Weighted bases (000's)	*42,918*

[1] See table 4.5.1 for list of conditions

Table 4.5.3 Complexity score by characteristics of dentate adults

Dentate adults — *England, Wales and Northern Ireland: 2009*

Characteristics of dentate adults		Complexity score [1] 0	1	2	3	4	5+	*Unweighted bases*	*Weighted bases*
All	%	37	27	18	10	5	3	*6,470*	*42,918*
Age									
16-24	%	62	26	6	3	2	0	*640*	*6,724*
25-34	%	51	27	11	6	3	2	*910*	*7,090*
35-44	%	47	27	15	6	4	2	*1,280*	*8,509*
45-54	%	30	28	19	13	6	4	*1,200*	*7,198*
55-64	%	17	24	29	16	9	5	*1,160*	*6,448*
65-74	%	15	25	29	19	8	4	*810*	*4,109*
75-84	%	9	31	25	19	8	8	*390*	*2,347*
85 and over	%	6	37	29	12	9	6	*80*	*494*
Sex									
Men	%	37	26	17	11	6	3	*2,960*	*21,069*
Women	%	37	27	18	10	5	3	*3,510*	*21,849*
Country									
England	%	37	27	18	10	5	3	*5,620*	*39,420*
Wales	%	30	26	21	13	6	4	*420*	*2,204*
Northern Ireland	%	41	25	15	12	5	3	*430*	*1,295*
English Strategic Health Authority									
North East	%	37	27	16	10	7	3	*570*	*1,924*
North West	%	36	25	20	12	5	3	*600*	*5,218*
Yorkshire & The Humber	%	38	26	19	9	5	3	*500*	*3,912*
East Midlands	%	38	30	15	8	5	3	*710*	*3,382*
West Midlands	%	32	28	19	10	8	3	*490*	*3,973*
East Of England	%	41	28	15	9	4	3	*650*	*4,452*
London	%	40	26	16	12	4	2	*400*	*6,016*
South East Coast	%	40	25	19	8	5	3	*450*	*3,314*
South Central	%	39	28	16	10	5	2	*610*	*3,204*
South West	%	31	27	18	12	8	3	*660*	*4,026*
Socio-economic classification of household [2]									
Managerial and professional occupations	%	42	27	16	9	4	2	*2,590*	*16,923*
Intermediate occupations	%	36	24	19	13	5	4	*1,180*	*7,797*
Routine and manual occupations	%	32	27	19	12	7	4	*2,020*	*13,612*

[1] See table 4.5.1 for list of conditions that contribute to complexity score

[2] Excludes people in households where the household reference person was not interviewed. Respondents whose head of household/household reference person was a full time student, in the Armed Forces, had an inadequately described occupation, had never worked or were long-term unemployed are not shown as separate categories but are included in the total.

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

Table 4.5.4 Complexity score by reported dental behaviour

Dentate adults *England, Wales and Northern Ireland: 2009*

Reported dental behaviour		Complexity score 0	1	2	3	4	5+	*Unweighted bases*	*Weighted bases (000s)*
All	%	37	27	18	10	5	3	*6,470*	*42,918*
Dental attendance									
Regular check up	%	39	26	19	10	4	2	*4,380*	*26,817*
Occasional check up	%	44	26	15	10	3	2	*550*	*4,278*
Only with trouble	%	30	28	17	12	9	5	*1,450*	*11,063*
Never goes to the dentist	%	41	24	6	16	8	6	*80*	*710*
Time since last dental visit [1]									
Less than 1 year	%	38	26	19	10	5	2	*4,960*	*31,309*
Between 1 and 5 years	%	38	28	15	10	5	4	*970*	*7,393*
Over 5 up to 10 years	%	28	29	19	12	8	4	*260*	*2,068*
Over 10 years	%	27	27	13	16	10	7	*200*	*1,425*
Frequency of teeth cleaning									
Twice a day or more	%	39	27	17	9	5	2	*4,820*	*31,782*
Once a day	%	32	26	18	13	7	4	*1,450*	*9,704*
Never/less than once a day	%	19	19	21	17	13	11	*180*	*1,321*
Plaque									
Visible plaque	%	32	27	19	12	7	4	*4,220*	*28,430*
No visible plaque	%	47	25	15	8	3	1	*2,250*	*14,488*
Smoking status									
Current smoker	%	29	25	18	13	10	5	*1,270*	*8,937*
Ex-smoker	%	36	26	19	12	5	2	*2,240*	*14,186*
Never smoked	%	41	28	17	8	4	2	*2,960*	*19,734*
MDAS score									
0-9	%	35	27	19	11	5	2	*3,290*	*21,233*
10-18	%	41	25	17	10	5	3	*2,320*	*15,584*
19+	%	30	30	16	11	9	5	*730*	*5,012*

[1] Excludes people who had never been to dentist

Shaded figures indicate the estimates are unreliable and any analysis using these figures may be invalid. Any use of these shaded figures must be accompanied by this disclaimer.

Table 4.5.5 Estimated odds ratios for a complexity score of 5 or more

Dentate adults *England, Wales, Northern Ireland: 2009*

Variable	N	Odds ratio	p-value[1]	Lower	Upper
Age (p<0.001)					
16-24	*650*	1			
25-34	*910*	5.61	0.027	1.22	25.80
35-44	*1,280*	7.45	0.008	1.70	32.60
45-54	*1,200*	19.44	0.000	4.94	76.52
55-64	*1,160*	22.77	0.000	5.36	96.64
65 and over	*1,280*	25.26	0.000	6.20	102.89
Pattern of dental attendance (p<0.001)					
Regular check-up	*4,380*	1			
Occasional check-up	*550*	1.22	0.520	0.67	2.23
Only with trouble	*1,450*	2.08	<0.001	1.47	2.94
Never	*90*	3.32	0.007	1.39	7.95
Frequency of teeth cleaning (p<0.001)					
Twice a day or more	*4,820*	1			
Once a day	*1,450*	1.50	0.015	1.08	2.08
Never/less than once a day	*200*	3.27	<0.001	2.00	5.36
Plaque (p<0.001)					
No plaque	*2,250*	1			
Has plaque	*4,220*	1.99	<0.001	1.37	2.87
Smoking status (p<0.001)					
Never smoked	*2,960*	1			
Ex-smoker	*2,240*	0.84	0.323	0.59	1.19
Current smoker	*1,270*	1.88	<0.001	1.33	2.65

[1]P-value for each variable excludes missing values.

Table 4.5.6 Dental health and complexity of treatment by age

All adults *England, Wales and Northern Ireland: 2009*

	Age							All
Dental health and complexity	**16-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**75 and over**	
	%	%	%	%	%	%	%	%
Excellent oral health[1]	23	16	12	5	1	1	0	9
Dentate, not complex	76	83	86	90	89	81	61	82
Dentate, very complex (score 5+)	0	2	2	4	5	3	5	3
Edentate	-	0	0	1	5	15	34	6
	%	%	%	%	%	%	%	%
Excellent oral health[1]	23	16	12	5	1	1	0	9
Dentate, not complex	70	74	76	71	65	57	44	67
Dentate, complex (score 3+)	6	11	12	23	28	27	23	18
Edentate	-	0	0	1	5	15	34	6
Unweighted bases	*1,040*	*1,500*	*2,050*	*2,040*	*1,960*	*1,530*	*1,250*	*11,380*
Weighted bases (000s)	*6,691*	*7,248*	*8,410*	*7,455*	*6,678*	*4,729*	*4,419*	*45,629*

[1]21+ teeth, and 18+ sound and untreated teeth and roots, no active decay and periodontally healthy (pocketing or LoA less than 4mm) in all sextants, no calculus or bleeding.

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