# The impact of oral health on people in the UK in 1998

**N. M. Nuttall,[1] J. G. Steele,[2] C. M. Pine,[3] D. White,[4] and N. B. Pitts,[5]**

**Knowledge of the extent of dental disease gives a clinical indication of the experience of dental problems but it does not necessarily reflect the problems that people experience as a result of their dentition. It is becoming increasingly appreciated that the way a disease affects people's lives is just as important as epidemiological measures of its prevalence or incidence. The 1998 Adult Dental Health survey is the first of the decennial series of UK adult dental health surveys to use and report a measure of the self-perceived impact on people of the dental and periodontal diseases and other oral conditions. Over half (51%) of dentate adults said they had been affected in some way by their oral health, and in 8% of cases the impact was sufficient to have reduced their quality of life.**

**In brief**

- Over half (51%) of dentate adults reported that an oral problem of some sort had affected them occasionally or more frequently in the 12 months preceding the survey.
- The most frequently experienced problem among dentate adults during the 12 months preceding the survey was oral pain (40%).
- The next most frequently experienced problems stemming from oral condition were psychological in nature (self-consciousness, feeling tense, difficulty relaxing or embarrassment)
- Eight per cent of dentate adults reported being severely affected by their oral health in that they felt their life was less satisfying or that they were totally unable to function at some time in the preceding year as a result of their oral condition.
- Many who had said they had experienced an oral problem in the preceding year had not gone to a dentist for treatment.

The national surveys of Adult Dental Health have given a 10-yearly summary of the clinical condition of adults in the United Kingdom on three previous occasions. The fourth report in the series was published in March of 2000. For the 1998 survey 4,984 addresses were identified at which all adults over 16 in residence were asked to take part in the survey; 21% of households refused and no contact was made at 5% of them. In total, 6,204 adults were interviewed following which those with some teeth were asked to undergo a dental examination: 3,817 (72%) of those eligible agreed. A weighting system based on some of the interview responses of those who consented to be dentally examined and those who were interviewed but not dentally examined was used to reduce bias from non-response.[1] The survey was carried out under the auspices of the Office of National Statistics together with the Universities of Birmingham, Dundee, Newcastle-upon-Tyne and Wales.

Preceding articles in this series have considered the clinical condition of teeth and supporting structures. However, clinical condition alone does not fully indicate how people feel affected by their oral state. In response to this a system to measure the impact of oral condition was introduced into the survey in 1998. This article considers some of these findings.

## The oral health impact profile

The Oral Health Impact Profile (OHIP) scale is one of the dental family of health 'quality of life' scales that span the whole range of medical conditions.[2] These try to put some sort of numerical value on different health states or outcomes. OHIP is based on a model of oral health adapted for dentistry by Locker (Fig. 1) from one proposed by the World Health Organisation for general health.[3] The model proposes that a hierarchy of impacts can arise

**Table 1** Dimensions and the subjects of questions associated with them

| Dimension | Subject of questions (two per dimension) |
|---|---|
| Functional limitation | Trouble pronouncing words, worsened taste |
| Physical pain | Aching in mouth, discomfort eating food |
| Psychological discomfort | Feeling self-concious or tense |
| Physical disability | Interrupted meals or poor diet |
| Psychological disability | Difficulty relaxing, embarrassment |
| Social disability | Irritability, difficulty in doing usual jobs |
| Handicap | Life less satisfying, inability to function |

[1]*Senior Research Fellow,* [3]*Reader, Honorary Consultant,* [5]*Professor, Honorary Consultant; University of Dundee;* [2]*Senior Lecturer, University of Newcastle upon Tyne;* [4]*Lecturer, University of Birmingham*
*Correspondence to: Dr Nigel Nuttall, DHSRU, Dundee Dental Hospital & School, Park Place, Dundee DD1 4HR*
*email: n.m.nuttall@dundee.ac.uk*
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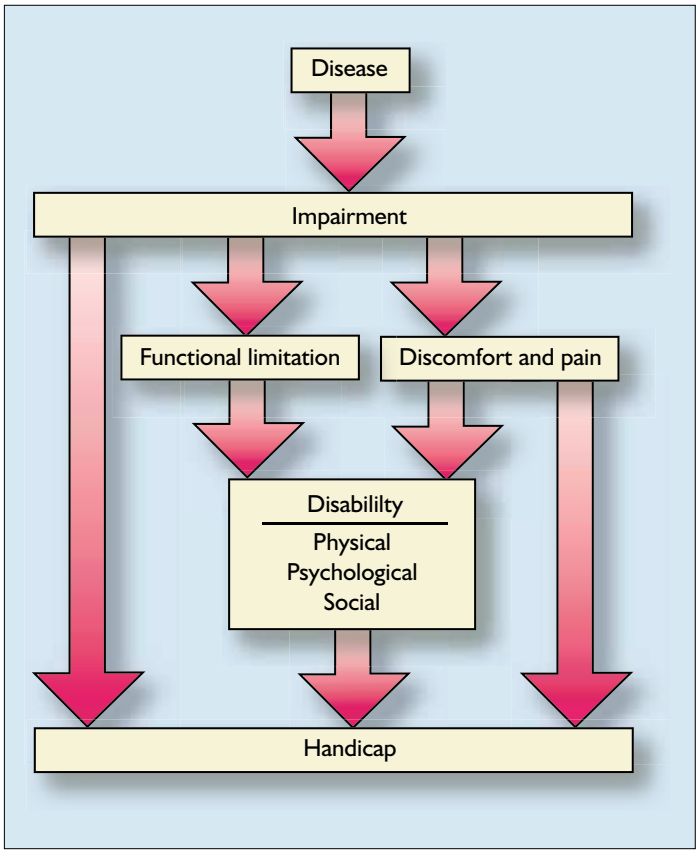


**Fig. 1 Slade's formulation of Locker's conceptual model of oral health**

from oral disease. For example, oral diseases can lead to the loss of teeth (impairment). At some stage this may lead to difficulties in chewing (functional limitation) or sometimes soreness brought on by dentures (discomfort). Eventually this may lead on to a restricted ability to eat or the need to avoid favourite foods (disability). In extreme cases this may even deter some people from eating anywhere outside the home or with their family members leading to a feeling of social isolation (handicap). In a sense the OHIP measure is a formalised and standardised equivalent to asking people from a dental point of view 'how have you been over the last year?'

The OHIP scale itself is a set of questions that were derived from in-depth interviews with people about how their oral condition affected their lives. Following this, the authors of the scale analysed the results to determine which factors were the most important to people. Items were also added to cover what was expected to be the relatively rare occurrence of handicap which was not something that came out of the interviews but which were felt would be important to a few people according to Locker's model.

The original OHIP scale consisted of 49 questions organised into seven categories or dimensions. This long form of the OHIP scale would be suitable for use in clinical practice where a practitioner might want to establish an objective baseline against which to assess the impact of a course of dental care. A complex course of restorative treatment can be assessed on a variety of criteria from a technical point of view but it is less straightforward to assess the effect of it on a patient. One approach would be to ask the patient to complete the OHIP scale before and after treatment. This would get round the problems associated with direct questioning, where a patient may feel constrained about being objective with the dentist who has carried out the work, or where they may simply be unable to decide whether they feel any better than in the past.

A shorter version of the scale consisting of

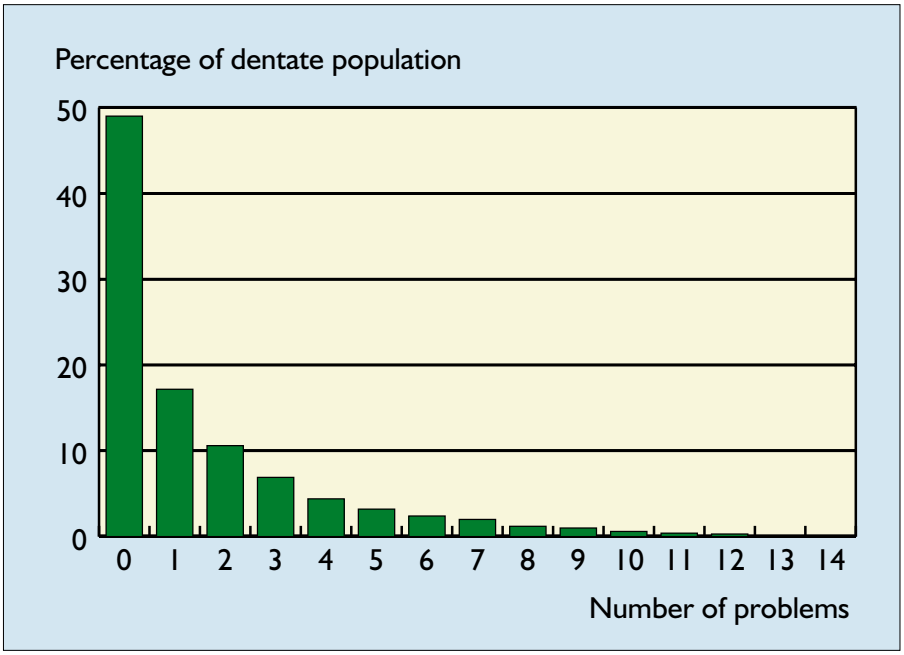


**Fig. 2 Number of oral problems experienced by dentate adults in the UK in 1998**

14 questions (2 for each dimension) was derived later on.[4] The dimensions and the subject of the questions associated with them are listed in Table 1.

Handicap for example was recorded in response to the questions such as *Have you found that life in general was less satisfying because of the condition of your teeth, mouth or gums?* and *Have you been totally unable to function because of the condition of your teeth mouth or gums?*

This shortened scale (OHIP-14) was the more practical to use in the context of the Adult Dental Health survey where many other questions needed to be asked. Shortening the scale does mean that some of the comprehensiveness of the original OHIP scale is lost, however, it still allows a basic overall measure of the impact of oral health on a national basis to be assessed.

## How many people are affected by their oral condition?

The importance of the oral diseases as a factor that affects many people in their daily lives is shown by the finding that more than half of the population of the United Kingdom who had some natural teeth said their oral condition had affected them occasionally or more often over the preceding 12 months (Fig. 2). Most people said they only experienced one or two problems over the preceding year; nevertheless a sizable proportion (11.4%) experienced five or more forms of impact in the year preceding the survey.

## What types of problem do people experience?

In Figure 3, the seven dimensions are ordered on the basis of how many dentate adults reported being affected by them. The questions underlying the dimensions are also summarised as short phrases. The most commonly experienced impact was pain (Fig. 3). Forty per cent of the dentate population reported being affected by oral pain occasionally or more often in the preceding 12 months. In the case of 3% of dentate adults, pain was experienced very often over the preceding year.

Many also felt that their oral state had a psychological effect on them in the sense that they felt self-conscious or felt tense (psychological discomfort) or that they found it difficult to relax or were embarrassed (psychological disability) about their oral condition. Over a quarter (27%) said they felt self-conscious or tense because of their oral condition and 18% said they felt embarrassed by their oral condition or that it made it difficult for them to relax.

Other impacts were experienced occasionally or more often during the preceding year by around 10% of adults; 10% said they had trouble pronouncing words or that their sense of taste had worsened (functional limitation); 9% said they had to interrupt meals or had an unsatisfactory diet (physical disability); 8% said they were irritable with others or had difficulty doing their usual jobs (social disability), and 8% said their life was less satisfying or that they were totally unable to function (handicap) because of their oral condition. The feeling of being totally unable to function as a result of their oral condition was a fairly rare experience and beyond the scope of the survey to

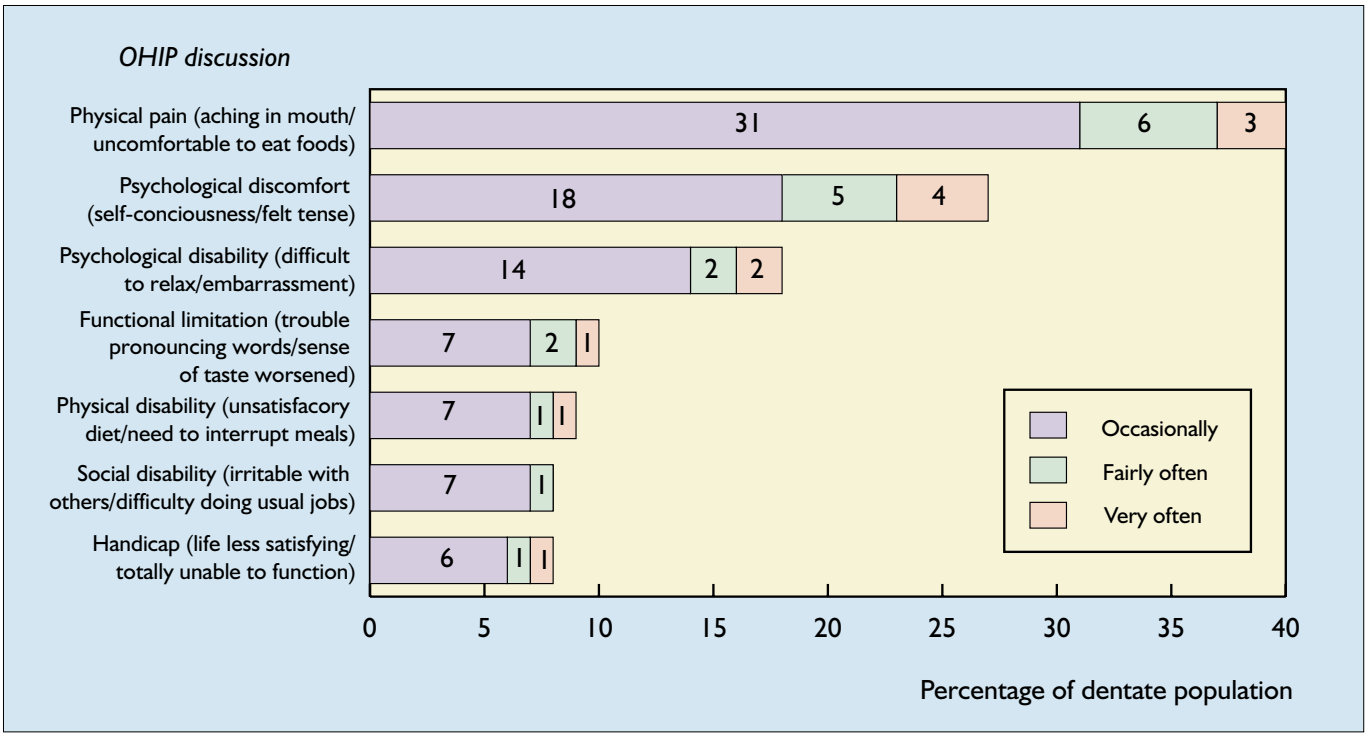


**Fig. 3 Frequency of experience of types of impact by dentate adults in the UK in 1998**

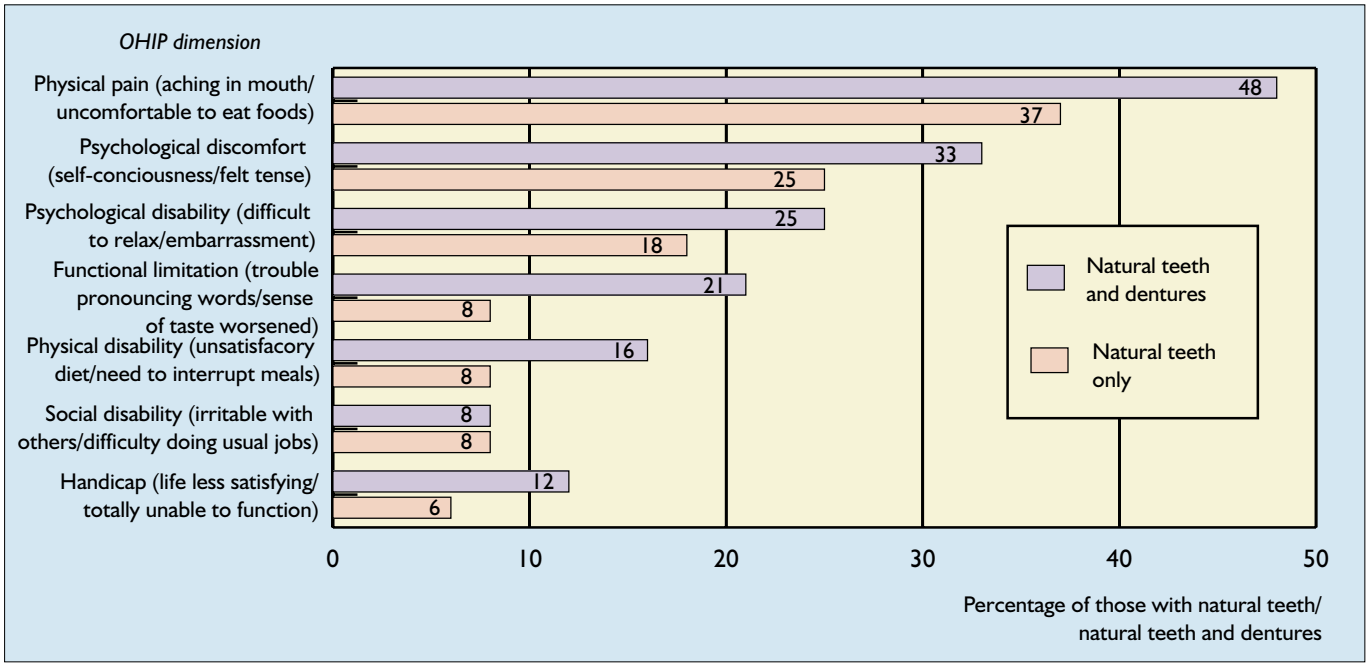


**Fig. 4 The impact of oral health on people with natural teeth only or with natural teeth and some dentures**

quantify reliably, nevertheless the finding that 76 people in the sample (1%) said this was an occasional experience over the preceding year suggests that oral condition can be a major determinant of reduced quality of life for a few people.

After pain the most frequently experienced problem were those categorised as psychological in nature. This is where people, for example, said they felt self-consciousness or found it difficult to relax as a result of their oral condition. Over a quarter of the dentate population said that they felt a form of psychological discomfort during the preceding year and 18% felt they had a problem that was in the category of a psychological disability. These results tend to suggest that issues concerned with aesthetics in dentistry affects quality of life more often (although not necessarily to the same degree) than issues of functionality in the dentate population as a whole.

### Is a person's oral status associated with problems experienced?

The relationship between the perceived impact of oral condition and the clinical condition of the mouth is examined in Figures 4 and 5. People with dentures were

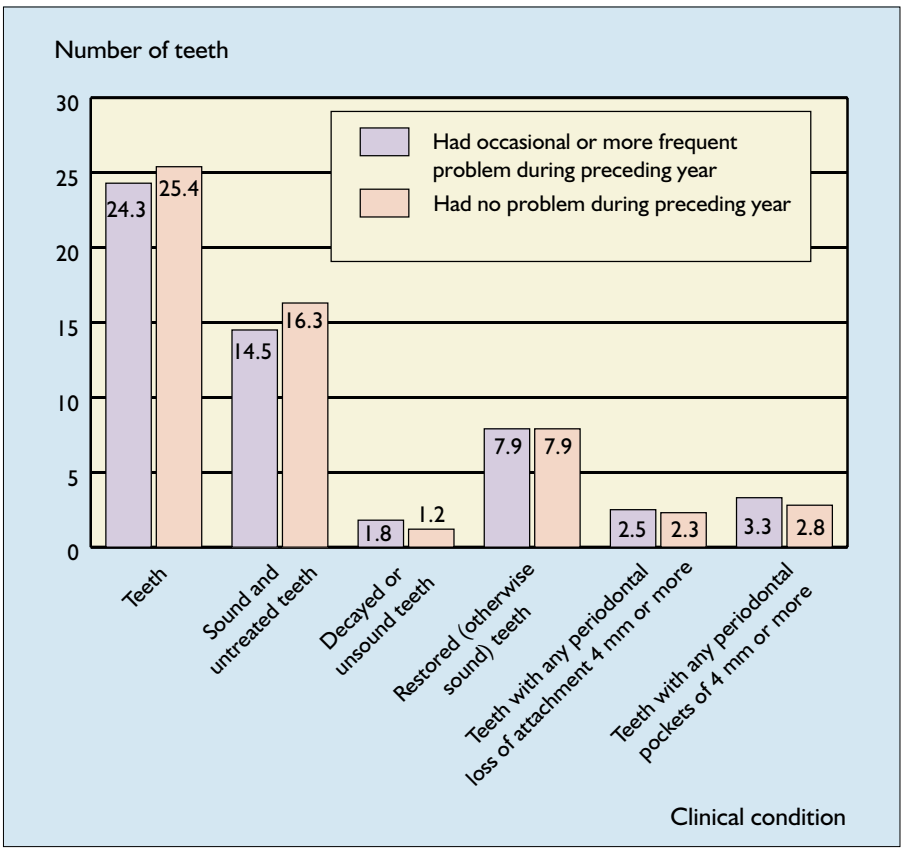


**Fig. 5 The impact of oral health compared with aspects of the clinical condition of mouth**

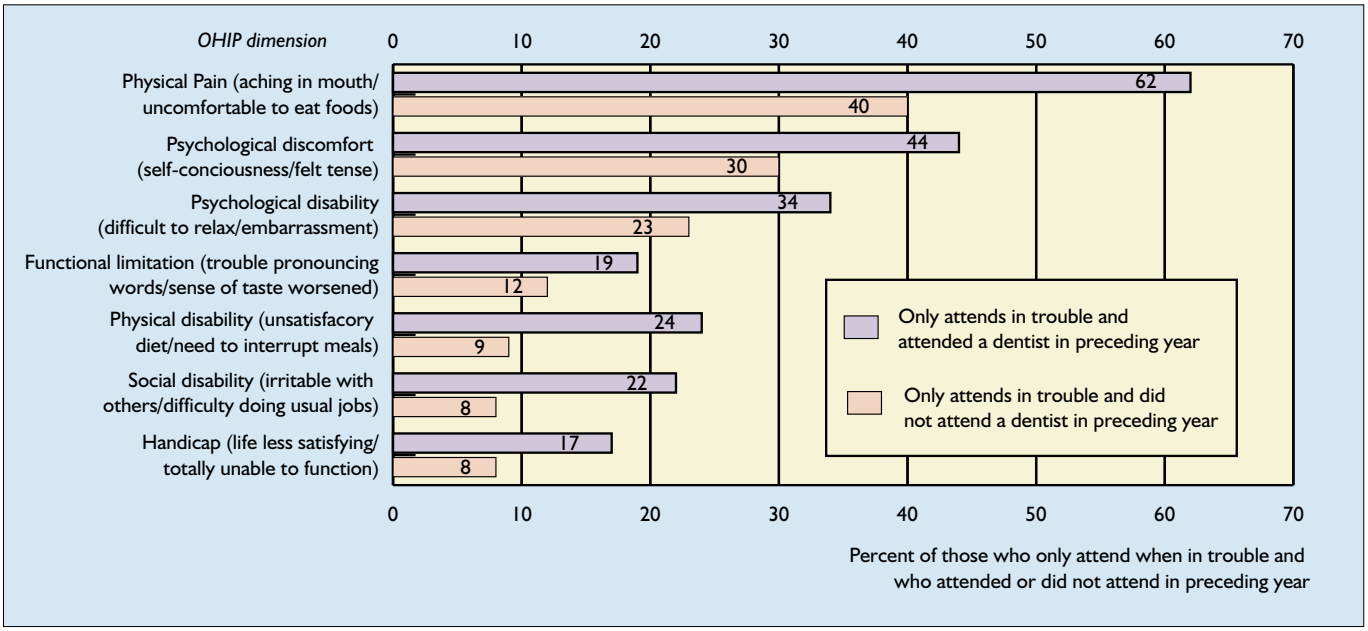


**Fig. 6 The impact of oral health in relation to dental attendance in preceding year of those who say they only attend when they have some trouble with their teeth**

more likely, than those with natural teeth only, to report having problems in six of the seven dimensions covered by the OHIP scale (Fig. 4). The main difference was in the experience of some form of functional limitation; 21% of those with dentures reported having this sort of problem compared with 8% of those who only had natural teeth. Denture wearers with some natural teeth were also twice as likely to say they had an unsatisfactory diet or trouble eating food (physical disability) than those with natural teeth only. They were also twice as likely as those with natural teeth only to say their oral condition made their life less satisfying or made them feel they were totally unable to function (handicap).

There was also a relationship between perceived impact and the clinical condition of a person's teeth but less so between impact and gum condition. Of the clinical indicators selected, those that were most markedly related to the experience of an OHIP-14 problem were the number of sound and the number of decayed teeth (Fig. 5). Those who reported an OHIP-14 problem had, on average, 1.8 decayed teeth and 14.5 sound teeth in comparison with an average of 1.2 decayed teeth and 16.3 sound teeth among those who did not report a problem.

## Which OHIP-14 problems motivate people to go to the dentist?

Many people only attend a dentist when they have some trouble with their teeth. So what sort of problems covered by the OHIP-14 scale cause people who experience them to go to a dentist? The people who took part in this survey were asked if they usually went to a dentist for a regular check-up, an occasional check-up or only when they had some trouble with their teeth. They were also asked separately when they last visited a dentist. Figure 6 looks specifically at those who said they only go to see a dentist when they have some trouble with their teeth according to whether they visited in the preceding year or not and compares this with any OHIP problems they experienced over the preceding year.

People who say they usually put off attending for dental care until they have a problem and who attended in the year preceding the survey were more likely to have had experienced an OHIP-14 problem during that time. For example, 44% of those who only attend when having some dental trouble and who went to a dentist in the preceding year said they had felt self-conscious or tense as a result of their oral condition compared with 40% who did not go to a dentist. Nevertheless of those who only go to a dentist when they have a dental problem many did not go to a dentist despite having an OHIP-14 problem. Forty per cent of people who only attend when they have some tooth trouble did not attend despite having some dental pain in the preceding year and 8% said their oral condition made their life less satisfying or made them unable to function yet did not attend.

## Is there any support for the model of oral health that OHIP-14 is based on?

A lot of the analysis of the OHIP-14 responses in the Adult Dental health survey has concerned itself with using the scale as a basic questionnaire to see what sort of problems people have with their teeth and gums. However, the scale is more than a standardised list of questions, it has an underlying model which sets out the way people's condition can affect them. It is beyond the scope of the Adult Dental Health survey to go in any depth into whether the results support the construction of the model underlying

the OHIP scale, however there is some support in the results for the scale conforming to the hierarchical nature of the model underlying it. The model views people as moving from one stage to another (Fig. 1); a person develops an impairment, which can sometimes become a functional limitation or discomfort. In some cases, although not all, this can then affect them in a psychological or social way and may eventually, if severe enough, become a handicap. It would thus be expected that more people would be affected by functional limitation, discomfort or pain than by physical, psychological or social disability and fewer still would be affected by handicap. The results bear out this prediction by and large, with pain and psychological discomfort being the most frequently reported problems; social physical and psychological disability being in the middle of the order; and handicap being the least frequently experienced problem.

### How many people are handicapped by oral disease?

In the most severe cases the model of oral health on which OHIP-14 is based (Fig. 1) suggests that some people can become handicapped by their oral condition. In addition to revealing just how often people can be affected by the types of problem considered by the OHIP scale some consideration should also be given to the more rare occurrences that were revealed. There is a limit to the accuracy of these surveys for predicting the prevalence of rare conditions in the population. Use of the findings concerning how many people occasionally felt totally unable to cope as a result of their oral condition would be an example of this. Nevertheless, the finding that 76 out of over 6,000 people felt sufficiently bad about their oral condition that it occasionally made them feel totally unable to cope indicates the level of severity of impact that oral conditions can have on some people. This will reflect the sum of a variety of specific clinical conditions, nevertheless, it suggests that somewhere around 1% of the population may consider themselves severely affected by their oral condition. The knock-on effects of this finding need to be considered further. Potentially there are far reaching considerations such the extent to which these conditions affect activities such as work and even the extent that they might put pressure on mental health services.

### What has the OHIP-14 measure revealed about the impact of oral health on adults?

The findings show that people can be affected in different ways by their oral condition and that for some the impact can be sufficiently serious that their lives are affected. Physical pain and the psychological impact of oral conditions were the most frequently reported problems that affected people. However, sight must not be lost of the very severe impact that oral condition can have on some people to the extent that they feel totally unable to cope. This cannot readily be appreciated simply from knowledge of the clinical conditions that exist in a population. There is a need for dentists and dental epidemiologists to consider how people live with their oral health state through the use of measures such as OHIP in order to appreciate where a person is so adversely affected by their dental condition that they are handicapped by it.

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