

Assessment of The Oral Health Related Quality of Life of Patients Awaiting Initial Prosthetic Assessment.

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Abstract - *The aim of the study was to quantify the impact of oral health problems on the quality of life of patients who were experiencing difficulties with dentures. Two hundred and ten patients who were awaiting an initial specialist assessment appointment were asked to complete the short form Oral Health Impact Profile (OHIP-14). One hundred and sixty three (78%) questionnaires were completed correctly and were analyzed. Overall, the prevalence of impacts was high in all sub-scales, indicating that denture related problems had a negative impact on quality of life of both partially dentate and elderly patients.*

KEY WORDS: Dentures, Quality of life, OHIP

INTRODUCTION

Dental problems such as periodontal disease and caries can have a significant impact on oral function, including ability to chew food comfortably. What is not as well recognized is their impact on quality of life and well-being. Subjective assessment of oral health is an important perspective for healthcare providers and clinicians to include in assessment of treatment need. This can be achieved by qualitative (e.g. semi-structured interviews) or quantitative (e.g. self-report questionnaires) means. Fiske *et al*¹ used a qualitative interview technique and confirmed that tooth loss has a profound effect on the lives of some people. Individuals may be severely affected even though superficially they appear to be coping well with dentures.

Using a quantitative approach, Bergendal² surveyed subjects in a community in Sweden using a modified Social Readjustment Rating Questionnaire and found that respondents perceived losing teeth and being provided with dentures as more important in terms of adjustment than events such as marriage, retirement and changing jobs. No significant differences were found in relation to age and sex.

Allen and McMillan³ used the Oral Health Impact Profile to measure the impact of tooth loss in two groups of edentulous patients. Both groups were attending a dental hospital because of problems relating to complete dentures. One group had been referred specifically for consideration for an implant retained and supported prosthesis. The other group had been referred for the replacement of existing

complete dentures. They concluded that subjects seeking implant treatment were significantly more impaired, disabled and handicapped than subjects seeking conventional dentures.

More than 13% of the UK population is edentulous and 16% have dentures in combination with natural teeth⁴. General dental practitioners manage the problems experienced by most of their patients but refer others for specialist care. In the UK, descriptions of the nature of referred patients to consultants in restorative dentistry have been published⁵⁻⁸ and are in agreement that there is a high level of demand for a number of common restorative problems. Previous studies have not however included subjective assessment of the impact of the problems experienced by patients referred to a secondary care setting.

The aim of the present study was to assess the oral health related quality of life of partially dentate and edentulous patients who had been referred to a UK dental hospital for specialist opinion and treatment.

MATERIALS AND METHODS

All 210 patients who had been referred to University Dental Hospital, Cardiff and who were awaiting a first appointment for specialist opinion relating to problems with removable prostheses were included in the study. Data were collected using questionnaires posted to the home address of all patients on the waiting list for assessment. The questionnaire booklet was accompanied by a covering letter inviting participation. The patients were asked to indicate their gender; whether they wore a complete or partial upper denture; whether they wore a complete or partial lower denture; how long they were wearing dentures and, how many sets of dentures they had worn previously. The short form Oral Health Impact Profile⁹

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was included in the questionnaire pack for self-completion. This is a widely used oral health related quality of life measure with 14 statements organized into seven conceptual domains, namely, functional limitation, pain, psychological discomfort, physical disability, psychological disability, social disability and handicap. The format of the questions is "In the previous year, have you had...because of problems with your teeth, mouth or dentures". The response format is based on a Likert scale, and response possibilities are 0 - never, 1 - hardly ever, 2 - occasionally, 3 - fairly often and 4 - very often. Prevalence scores were calculated by counting "very often" and "fairly often" responses for each statement. Summary scores were calculated by summing the response codes (possible range of 0-8) for each of the two statements within sub-scales, and by summing all response codes to compute an OHIP-14 summary score (possible range of 0-56). Higher scores indicate poorer oral health related quality of life. Non-respondents were sent a reminder letter with a further copy of the questionnaire.

Data were transferred to a spreadsheet on a personal computer and analyzed using Minitab Statistical software (Version 13). Descriptive data were reported for the sample as a whole. The sample was divided into edentulous ($n=71$) and partially dentate ($n=74$) groups (dental status could not be identified for 18 subjects, and these data were excluded from the analysis), and Chi Squared tests were conducted to test for differences between prevalence of impacts reported for each OHIP statement. Finally, Pearson's correlation coefficients were calculated to test the strength of association between OHIP summary scores and denture wearing history variables. The level significance was $p<0.05$ for all tests.

RESULTS

One hundred and eighty (86%) questionnaires were returned. Of those, 17 contained large amounts of missing responses and were discarded. The responses of one hundred and sixty three (78%) of all patients were therefore included (although dental status could only be accurately identified for 145 patients). Fifty-eight were male and 99 female, with six subjects not indicating their gender.

The median scored for OHIP subscale scores is given in Table 1. These scores indicate that oral health related problems impacted negatively across all domains, particularly discomfort (physical and psychological) and disability (physical and psychological) domains.

Table 2 shows the prevalence of negative impacts for each OHIP-14 statement as a proportion of the overall sample. As may be expected of denture wearing patients, the proportion of subjects experiencing discomfort when eating is very high (78%). Interestingly, a large proportion report being self-conscious (67%) and embarrassed (62%) because of problems with their oral health.

In Table 3, details of prevalence of impact are shown by dental status (edentulous versus partially dentate). These data indicate that the prevalence of impact for all statements was similar for edentulous and partially dentate patients, and the proportion reporting negative impacts within each group were not significantly different.

Finally, correlation coefficients were calculated as a measure of the strength of association between OHIP-14 summary scores and a) gender, b) length of time wearing dentures, and c) number of dentures they had previously worn. The only association which was statistically significant was the number of sets of dentures worn by the partially dentate group (Pearson's correlation coefficient: -0.25 , $p=0.04$). This correlation, though statistically significant, was moderate and suggests that denture wearing history was not a major contributing factor to oral health related quality of life.

DISCUSSION

Previous studies have confirmed the clinical observation that many patients are severely affected by loss of teeth and an inability to adapt to prostheses. In this study, we used the OHIP-14 to gain insight into the patient's perspective of their denture wearing problems. This measure has been developed and validated as a method of quantifying the effect that oral and dental disorders have on quality of life giving a measure of their social impact. The original 49 question version has been modified to produce the short OHIP-14, which facilitates its use in clinical studies. Previous reports have described the validity properties of this shortened version³. A particularly attractive feature of this measure is that it is conceptually underpinned by the World Health Organization's International Classification of Impairment, Disability and Handicap¹⁰. Accordingly, it is sensitive to a range of consequences of oral problems, including disability (not being able to undertake normal tasks of everyday living) and handicap (minimizing social contact).

The response rate in the present study was excellent, and it is unlikely that the overall conclusions will be altered by the failure to achieve a 100% response rate. It is possible that the non-responders had a more positive perception of their oral health related quality of life, and hence they did not respond to the study. A further possible explanation for non-response may also be that they had chosen to seek dental care elsewhere. Nonetheless, a response rate of 78% is excellent for a study such as this one, and the patients included in this study provide useful information about the problems experienced by patients referred from primary care setting for specialist care.

Many of these patients may elicit little sympathy for their condition, as more than 13% of the UK population is eden-

Table 1. Median OHIP sub-scale scores for total sample.

Domain	Median
Functional Limitation	4.0
Physical Pain	6.0
Psychological Discomfort	7.0
Physical Disability	6.0
Psychological Disability	6.0
Social Disability	4.0
Handicap	3.0

Table 2. Prevalence Scores by statement (% of group reporting an item impact "very often" and "fairly often").

	Very often %	Fairly Often %
Functional Limitation		
Trouble pronouncing words	18.5	17.8
Felt that your sense of taste has worsened	15.6	15.6
Physical pain		
Had painful aching in your mouth	30.1	15.1
Found it uncomfortable to eat any foods	60.3	17.8
Psychological Discomfort		
Been self-conscious	53.4	13.7
Felt tense	46.6	17.1
Physical disability		
Had an unsatisfactory diet	32.9	20.5
Had to interrupt meals	37	16.4
Psychological disability		
Found it difficult to relax	37.7	15.8
Been embarrassed	43.8	18.5
Social disability		
Been a bit irritable with other people	28.8	11
Had difficulty doing your usual jobs	13	7.5
Handicap		
Felt that life in general was less satisfying	36.3	16.4
Been totally unable to function	10.3	8.9

Table 3. Number of subjects (percent) reporting negative impacts (very often and fairly often responses) for each OHIP-14 statement by dental status.

OHIP Statement	Group (%)		P-value
	Edentulous (n=71)	Partially dentate (n=74)	
Trouble Pronouncing Words	37	38	n/s
Sense of Taste Worsened	36	31	n/s
Painful Aching in your mouth	50	45	n/s
Uncomfortable to eat	80	81	n/s
Self Conscious	69	67	n/s
Felt Tense	65	68	n/s
Diet Been Unsatisfactory	56	55	n/s
Interrupt Meals	52	57	n/s
Difficult to Relax	52	57	n/s
Been a Bit Embarrassed	58	68	n/s
Been Irritable	42	38	n/s
Difficulty Doing Usual Jobs	20	18	n/s
Life Less Satisfying	52	58	n/s
Totally Unable to Function	24	18	n/s

tulous and 16% have dentures in combination with natural teeth⁽⁴⁾. It is easy to assume that their problems are largely functional in nature, and relatively straightforward to rectify. However, subjective assessment gives an indication of the full impact of denture wearing problems experienced by these patients. The results demonstrated that patients awaiting assessment for denture related problems experienced a range of negative impacts. As one would expect, functional limitation was frequently reported. It could be argued from the results that the median score for the functional limitation subscale is less than it should be given that this is a denture wearing population. This may be related to the lack of items in the OHIP-14 directly related to chewing. The OHIP-14 used in this study is considerably shorter than the complete OHIP, and has been previously used to compare outcomes of different forms of treatment. However, it should be borne in mind that elimination of chewing items in the shortened version may lead to loss of precision in the functional limitation domain. A modified short version of OHIP (OHIP-EDENT) has been devised for use with edentulous patients that includes items related to chewing, and this may be more sensitive to change in a clinical trial setting¹¹.

In addition to functional limitation, less obvious problems such as social embarrassment are clearly experienced by a large number of these patients. This is consistent with the findings reported by Fiske *et al*¹ who indicated that tooth loss has broader psycho-social consequences than the obvious problem of functional limitation. The OHIP scores across the seven dimensions have shown that many of the referred patients are severely affected by their problems. Given the lack of correlation between denture wearing history and the OHIP summary scores, it would appear that the cause of poorly rated oral health related quality of life is not a product of poor quality dentures alone.

A number of population studies have indicated that oral health related quality of life tends to be poorer in edentulous patients than partially dentate patients^{12,13}. However, in this study, the problems experienced by partially dentate patients appear to be as prevalent as edentulous patients. For the purpose of comparison, patients edentate in one jaw were included in the partially dentate group. There were 18 patients who were edentate in one jaw and partially dentate in the other (14 edentate in the maxilla and 4 in the mandible). This would be too small a group to include on its own in a cross-sectional descriptive study such as this. This may have had some influence, but it is unlikely to have significantly affected the conclusion that the problems reported by partially dentate patients are of similar frequency and severity as edentulous patients. In both groups, the most prevalent problems related to discomfort when eating and feeling embarrassed by their dental status. The proportion of patients feeling embarrassed was higher in the partially dentate group, although this difference was not statistically significant. This may be related to embarrassment with the appearance of the remaining natural teeth or simply a reflection of concern with unsatisfactory dentures. The finding that 52% of the edentulous patients and 58% of the partially dentate patients found "life less satisfying" as a result of oral health problems is important. Clearly, their oral complaints have had a negative impact on quality of life, and this is unlikely to have been completely appreciated by clinical assessment alone.

It has been noted that using OHIP and comparable measures will bring dentistry into line with contemporary concepts of health care by highlighting the broader personal and social consequences of oral diseases and disorders¹⁴. Such surveys can therefore be useful in demonstrating the value and need for clinical services to health service providers. If services in secondary care settings are to be funded on the basis of improvement of quality of life of patients, then there is a need to include patient based assessment when screening patients. As suggested by Slade and Spencer¹⁵, patient based assessment can be used to target sub-groups in the population for priority funding on the basis of subjective as well as objective need. It is of importance to determine whether conventional prosthetic treatment alone is sufficient to deal with severely affected patients or whether additional psychological support is needed. In some cases, it is possible that implant retained prostheses may be indicated for patients with severe denture related problems. OHIP-14 scores may strengthen the case for funding for these patients. More controversially, use of measures such as the OHIP-14 could be considered to prioritize patients on waiting lists.

CONCLUSIONS

It was demonstrated that patients awaiting an initial assessment appointment had a wide range of OHIP scores indicating the variable extent which oral disorders and conditions impacted upon their daily lives. Many subjects were severely affected. Particularly high scores were detected for physical pain, psychological discomfort and psychological disability. Use of the OHIP-14 should be considered for targeting resources for patients and to help improve our understanding of problems experienced by patients with large numbers of missing teeth.

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