On becoming edentulous. An investigation into the dental and behavioural reasons for full mouth extractions.

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Chapter twelve

SUMMARY

This investigation deals with reasons for full mouth extractions. In chapter 1, the general introduction, changes in edentulous-rates in different countries and disease and non-disease reasons for full mouth extraction are reviewed. The Netherlands has one of the highest percentages of edentulous people in the world (about 30% of the adult population). Apart from caries and periodontal disease, non-disease factors such as attitude and behaviour, characteristics of the health care system and dental attendance patterns may play a role in the decision to become edentulous. It appears from the literature that edentulousness and dental attendance are associated with each other. The availability of dental care appears to have consequences for the dental attendance pattern and the treatment received. Indeed some authors argue that tooth loss does not bear a close relationship to the prevalence of dental disease. Many investigators have shown a significant relationship between edentulousness and low occupational levels.

In order to obtain a better insight into the underlying mechanisms and factors which lead to the decision to have full mouth extractions, a research project was started with the following aims:

a. To describe the dental conditions at the time of full mouth extraction.

b. To explore the role of non-disease factors, and their relationship to the dental condition, which lead to full mouth extraction.

Some of the results of a pilot study are described in chapter 2. Nineteen patients were interviewed immediately prior to undergoing full mouth extraction. A theoretical model of
the process preceding full mouth extraction was then constructed and this was used as a basis for the main investigation into the reasons for full mouth extraction. This investigation was carried out in 1982 in the city of Groningen (170,000 inhabitants) and in 1983 in a rural area about 30 miles to the east of Groningen (150,000 inhabitants). In 1981 the dentist-population ratio in the urban area was about 1:2500; in the rural area 1:5700. These two areas were chosen because of their traditionally high and low dentist-population ratios, which might affect the incidence of full mouth extraction.

All dentists in these areas were asked to store the extracted teeth of patients requiring a full mouth extraction. Ninety-one percent of the dentists participated in the urban area and 92% in the rural area. Patients who participated were those who received full dentures, regardless of whether they already had partial dentures. The extracted teeth were examined independently by two calibrated dentists. After identification the caries status of the teeth was established. The loss of attachment (L.A.) was measured in order to assess the degree of clinically relevant periodontal disease. Loss of attachment was measured in terms of the percentage of the root length no longer covered by periodontal fibres. Generalized advanced periodontal disease was considered to be present when 50% or more of the teeth present had L.A. ≥50%.

The dentists also asked their patients to fill out a questionnaire at home. In the rural area this was returned by 76% of the 237 patients. In the urban area 78% of the 134 patients did so. The patient's questionnaire dealt with behavioural aspects which were assumed to influence the decision to have full mouth extractions. Finally, the dentists were asked to fill out a short questionnaire for each patient. Questions were asked about the patient's general dental condition. In an open-ended question the dentists were asked to state their reasons leading to full mouth extractions.
The caries status in an urban area at the time of full mouth extraction and its relation to age, sex, educational level and dental attendance pattern is described in chapter 3. Almost 28% of the patients paid regular visits to the dentist up to the date of extraction; 46% had stopped regular visits many years before and 25.7% only visited the dentist for symptomatic reasons. The average age of the patients was 44.2 yr. The average number of teeth present at the time of extraction was 14.2; the average DMFT-value was 22.8. Regular attenders had less D-teeth than irregular attenders but on average they still had 3.5 teeth with caries. Regular attenders had more F-teeth but less sound teeth than irregular attenders. The contribution of the dental health care system to the dental health of the population is discussed.

The main issue discussed in chapter 4 is the periodontal condition in an urban area at the time of full mouth extraction and its relationship to age, sex, educational level and dental attendance pattern. It appeared that most surfaces in the molar region and the front teeth in the mandible were affected by periodontal disease. Advanced generalized periodontal disease (i.e. 50% or more of the teeth with L.A. >50%) was found in 17% of the patients and accounted for 64% of all teeth with an L.A. measurement of >50%. There was a positive correlation between age and the average number of teeth with advanced periodontal disease. The periodontal condition of irregular attenders was better than that of regular attenders. This significant relationship still existed when age was considered. Periodontal disease could not be identified as the main clinical condition requiring tooth extraction. Even in the group aged 55 yr and older advanced periodontal disease was found in only one-third of the extracted teeth.

The difference between the incidence of edentulousness in an urban and rural area is analyzed in chapter 5. During a period of one year 137 cases of full mouth extraction were recorded in the urban area, in the rural area this was 237.
This is equivalent to 109 and 226 full mouth extractions per 100 000 inhabitants, respectively. Variations in population characteristics could not entirely explain these differences. It is concluded that people living in a rural area have an increased risk of (early) tooth loss, which might be a consequence of the relatively low dentist-population ratio in the rural area. In particular, this might have applied to people living in the rural area who had discontinued regular dental attendance. At the time of full mouth extraction their average age was 35 yr; in the urban area the average age of this group was 41 yr.

The caries status at the moment of full mouth extraction in a rural area is compared with that in an urban area in chapter 6. An equal proportion of patients in the urban and rural areas had partial dentures prior to losing the last of their teeth. However, whilst only 33% of the patients wearing partial dentures had full maxillary or mandibular dentures in the urban area, this figure was 73% in the rural area. In the rural area a larger proportion had lost 21 or more teeth at the time of total extraction. It was concluded that in the urban area more effort was spent in maintaining the natural dentition. Nevertheless, the differences in dental condition between the urban and rural area are rather small. When the almost identical DMFT figures (22.8 and 22.5 respectively) and its separate components are considered, it must be concluded from this data that no substantial differences in treatment procedures can be demonstrated between dentists from both areas.

The relative importance of periodontal disease for full mouth extraction in both an urban and rural area is described in chapter 7. When the results of both urban and rural areas were combined, caries was the predominant disease in the largest proportion of patients (57%). In only a small group (13%) was periodontal breakdown the predominant factor. Caries and periodontal disease were equally relevant in a further 13%. In only 16% of the cases was the oral
health status not considered to be bad enough to justify full clearance, but this does not mean that these patients were dentally fit. In both urban and rural areas and in all age groups caries and not periodontal disease was the main clinical condition requiring full mouth extraction. The difference in the prevalence of generalized periodontal breakdown between an urban and rural area (17% and 9% respectively) was a result of differences in age structure between the two groups of patients. It was concluded that patients living in areas with different dentist-population ratios have a comparable caries status and periodontal condition at the time of full mouth extraction.

The opinions of dentists, patients and researchworkers with respect to the dental condition at the time of full mouth extraction have been compared in chapter 8. When comparing the dentists' diagnosis with the condition of the dentition, as assessed by the researchworkers, there appeared to be a fair degree of agreement, although some striking deviations were found. Some unexplained discrepancies were found between the patients' opinion and the opinion of the researchworkers. Dentists and patients agreed in their perceptions of the dental condition in 60% of the cases. Plausible explanations are given for some but not all the discrepancies found. Some methodological aspects of this study may account for the remainder. It was, for example, found that there were differences in the precision with which the dentists' examination and the clinical assessment of the researchworkers were carried out. The dentists' opinion might also have been influenced by aesthetic considerations, patients motivation, financial factors, etc. It was concluded that most of the contradictions between the dentists' and patients' viewpoint can probably be explained by the fact that the norms which were used by both parties involved were not strictly comparable.

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The decision processes preceding full mouth extractions are analyzed in chapter 9. Over one-third of the patients had considered full mouth extractions at least once before, and 16% had considered it frequently over a period of many years. Anxiety was the most important reason for not visiting a dentist earlier. In the patients' view they were the initiator of the decision to have all their teeth extracted in 86% of the cases, whilst according to the dentist, the patients initiated full mouth extraction in 70% of the cases. Dentists and patients agreed that irregular attenders more often took the initiative than regular attenders. Most patients (87%) had discussed the decision to have all their teeth extracted with one or more persons; many different contacts were reported by 14% of the patients. Analysis of the number of different consultations preceding full mouth extractions showed that there was a ranking order from more to less intimate personal relationships (partner, parents/children, friends, colleagues, neighbours). Two groups could be identified using Freidson's lay referral theory: a group with a severely truncated lay referral structure and a group characterized by a more extended lay referral structure. The first group was older (46 against 36 yr for the second group) and had a more positive attitude towards full dentures. Dentists are recommended to involve a representative from the patients' social network when important decisions have to be taken.

In chapter 10 the dental careers are described in terms of dental attendance pattern and related factors. Three distinct profiles of dental careers could be identified.

a. The regular attenders (19%). Because of their age ($\bar{x}=47$ yr) and their positive attitude towards dentistry, together with their positive attitude towards full dentures, it is suggested that the possibilities of keeping the natural dentition had been exhausted so that full mouth extraction was an acceptable solution.

b. The symptomatic attenders (38%). It is suggested that in this group anxiety has been caused by social learning.
Together with their positive attitude towards full dentures, the high prevalence of full dentures in their social environment and their low socioeconomic status, these patients lived in a culture which supports behaviour that leads to full mouth extraction.

c. Once regular attenders (43%). In this group anxiety has led to a negative perception of dental visits and to a negative attitude towards dentists. As a consequence dental visits became deferred, which resulted in deterioration of the dentition and increased anxiety. Facilitated by a positive attitude towards full dentures, their bad dental condition finally resulted in full mouth extraction at early age.

In chapter 11, the general discussion, some methodological aspects of this investigation are discussed. It is concluded that the teeth of the patients showing up for a full mouth extraction were in a bad condition. Apart from caries and periodontal disease non-disease reasons did play a role in the decision to become edentulous. Not going to the dentist does not seem to be beneficial to the maintenance of the natural dentition. Indications were found that the rural population has suffered in particular of the low availability of dentists.

Two negative self-reinforcing cyclic processes are outlined in which non-disease factors like anxiety and avoidance behaviour play a crucial role. Finally, it is suggested that the decrease in rates of edentulousness in The Netherlands will probably continue. Paying more attention to people who have stopped regular dental attendance may help to further improve the situation. The group of symptomatic attenders may be more problematic. Because of their culture pattern, in which no tradition of dental attendance exists, it is more difficult to achieve reasonable levels of personal contact. Further, additional financial barriers, which will in all probability occur in the future, will result in a further deterioration of their situation.