

ASSESSMENT OF DENTAL TREATMENT NEEDS AMONG SAUDI FEMALE PATIENTS IN THE DENTAL SCHOOL CLINIC, RIYADH

Nahed Y. Ashri,* BDS, MSc

هدفت الدراسة لتقييم احتياجات المعالجة لدى المرضى السعوديين المعالجين من قبل طلاب السنة النهائية في كلية طب الأسنان - جامعة الملك سعود ، من خلال تحليل المعالجة المنجزة على المرضى المحتاجين للمعالجة السنية الشاملة .
 دلت النتائج على ارتفاع الحاجة للمعالجة المحافظة مقارنة بالمعالجة التعويضية . تلقى حوالي ٥٧.٥% من المرضى معالجة تعويضية مقارنة مع ٨٢.٩% تلقوا معالجة محافظة .
 بلغت نسبة المرضى المحتاجين للمعالجة السنية الشاملة ٦٧.٩% وحوالي ٣.٧% بحاجة لإرشادات العناية الفموية فقط أما بالنسبة لحالات القلع البسيط أو الجراحي فكانت النسبة ٦٣.٦% .
 تعكس هذه النتائج الحاجة الملحة لتوجيه الجهود نحو الإجراءات الوقائية وأهمية العناية الفموية لتقليل من النخور السنية وأمراض اللثة والأنسجة المحيطة بالأسنان كما يجب على أطباء الأسنان أن يكونوا يقظين تجاه احتياجات المعالجة المستقبلية للمرضى البالغين المراجعين للعيادات السنية بانتظام .

The aim of this study was to evaluate the treatment needs of Saudi patients treated by senior dental students at the College of Dentistry, King Saud University, by analyzing the treatment performed on patients with comprehensive dental need. It was found that restorative dental treatment was performed on a higher frequency compared to prosthodontic treatment. 57.5% of the patients received prosthodontic treatment compared to 82.9% restorative treatment. Most of the patients (67.9%) required comprehensive periodontal treatment, while only 3.7% needed oral hygiene instruction alone. Simple or surgical extraction was done for 62.6% of the cases. The results reflect the need for more work directed towards preventive measures and importance of oral hygiene to reduce dental caries and periodontal diseases. Moreover, dentists are alerted to the future treatment needs of regularly attending adult patients.

Introduction

An accurate assessment of dental treatment needs is important for public dental health planning. Need for dental care can be defined as that quantity of dental treatment which expert opinion judges ought to be consumed over a certain time period for people to achieve the status of being dentally healthy.¹ This definition establishes that dental need is a professional determination, and it implies that "dental health" is also professionally determined. Professionally determined need of this nature is referred to as normative need.

There are several reasons why a health planner should conduct a needs assessment in the population. The primary reason is to define the problem and to identify the extent and severity of the problem. Second, it is used to obtain a profile of the community to ascertain why the

problem exists, that is, the cause of the problem.² This information will help in developing the appropriate goals and objectives in the problem solution. Another important reason for conducting a needs assessment is to evaluate the effectiveness of the program. This is accomplished by obtaining baseline information and, over time, measuring the amount of progress achieved in solving the specific problem.³

Evaluating the need for treatment in the populations is a complicated task since many factors not directly related to the actual treatment for disease can interfere such as cost, know-how, culture, equipment, manpower, and prognosis of treatment. Consequently, the dental care produced depends on an interaction between need for treatment and the above-mentioned factors.⁴

Received 15 November 1998; Revised 17 February 1999, 15 March 1999; Accepted 02 May 1999
 *Lecturer, Division of Periodontics, Preventive Dental Sciences Department, College of Dentistry King Saud University

Address reprint requests to:
 Dr. Nahed Y. Ashri
 Preventive Dental Sciences Dept., Division of Periodontics
 College of Dentistry, King Saud University
 P.O. Box 60169, Riyadh 11545, KSA

As mentioned, conducting a needs assessment for a community can be a very costly endeavor with respect to the funds, labor, and time necessary to adequately do it. One of the options to the planner is to coordinate the necessary research with the efforts and activities of educational places like universities or health centers that can conduct health survey of residents in a defined geographic area.⁵

Most recent studies on the need for dental treatment have been performed on specific populations such as the elderly,^{6,7,8} institutionalized and the handicapped,^{9,10} and these have, in general, reported high normative needs in these populations. Few studies have estimated the treatment needs in general population and related the results to the dental treatment they received.¹¹

Limited number of studies reported in Saudi Arabia had evaluated the needs for treatment,^{12,14-16} however, most of the studies assist the demands for dental care.

This shortage of information related to prevalence of dental disease among the Saudi population creates difficulties for dental health planners, educators and practitioners who are attempting to organize the dental service in the Kingdom.¹³

The aim of this study was to assess the normative treatment needs among Saudi female patients treated by senior dental students during their comprehensive general dentistry course at the College of Dentistry, King Saud University.

Materials and Methods

Saudi female patients seeking comprehensive dental treatment were referred to the 5th year students to be treated in the clinics of the Dental School, King Saud University, Saudi Arabia. The author did the screening and the selection of cases. A comprehensive treatment plan was done for each patient including an alternative treatment plan.

Each patient was examined thoroughly, the status of the oral mucosa noted and the different treatment needs evaluated for each patient. The treatment plan was checked and approved by three specialists and then discussed with the patient.

A comprehensive treatment plan given for each patient included full mouth periodontal examination with assessment of plaque and gingival index, probing pocket depth and attachment loss and a radiographic examination. Endodontic examination was carried out using cold and heat application as well as electric pulp tester in addition to a radiographic examination.

Restorative need was assessed by clinical examination of teeth for the presence of caries by explorer and radiographic examination. The need for caries removal or replacement of overhanged restoration or broken restoration was also recorded. Extraction of remaining roots and teeth with periodontal breakdown as well as impacted teeth was also noted. Recording of missing teeth and the possible replacement with fixed or removable partial denture was done.

A special form was designed to evaluate the final treatment given to the patient. The form was given to the students at the end of the academic year as part of their evaluation forms. The course lasted for an academic year of eight months and the patients were seen four times/week and each appointment lasted for 3 hours. Data was collected from two academic years, 1996-1998. Of the total number of 700 patients seen, 302 patients required comprehensive treatment and were referred to the fifth year students.

Data was statistically analyzed using the Statistical Package for Social Sciences. Descriptive analysis was done using frequency distribution for the treatment given.

Results

The patients were grouped by age in order to study the relationship between age and different types of treatment applied. Chi-square test was used to study this relationship and the level of statistical significance was $p < 0.05$. However, the result of the Chi-Square test did not show any significant difference between the type of treatment applied and the age of the patient. Consequently, only descriptive analysis was used to describe the type of treatment given to the patient. Table 1 presents the percentages of the different types of treatment given.

Table 1. Percentages of the different types of treatment given.

Type of Treatment	Percentage
Restorative treatment	82.9%
Fixed prosthodontics	62.6%
Removable prosthodontics	57.5%
Surgical procedures	75.8%
Periodontal treatment	96.3%

Patients' age ranged between 17 and 75 years, the mean and the median being 39 and 40 years, respectively. The highest number of patients was 26 (8.6%) and they were in the 35, 40, and 50 years old range. There was only one patient (0.3%) in each age category of 28, 21, 41 and 54.

The majority of the patients (82.9%) had received some type of restorative treatment (Table 1). As seen in Table 2, amalgam restoration was the most frequently required type of restoration which accounted for 89.7%. Ten percent of the total number of patients did not receive amalgam restoration. Four restorations (13.2%) per patient was the most frequent number of restoration given. The maximum number of restoration given was 15 (0.7%) restorations per patient.

Tooth colored restorations were given to 75.8% of the patients with two (12.9%) tooth colored restorations per patient as against the maximum number of 16 (0.3%) restorations per patient (Table 2).

Table 2. Different types of restorative treatment.

Restorative Treatment	Number	Percentages	Confidence Intervals
Amalgam restorations	271	89.7%	(0.8627,0.9312)
Tooth colored restorations	226	75.8%	(0.7093, 0.8066)
Endodontic treatment	285	97.1%	(0.9517,0.9902)

Confidence intervals = 95%

Endodontic treatment either as a single rooted tooth or multiple rooted tooth was given to 97.1% of the patients, 41.8% of which was given as a multiple rooted tooth (Table 2).

As shown in Table 3, 51% of the patients received fixed prosthesis treatment in the form of single crown, which ranged from 1 to 19 crowns per patient. Three units fixed bridge was given to 19.4% of the cases. The maximum number of fixed bridge unit was 6 (0.7%), however, 66.6% of the patients did not require this treatment modality.

Approximately fifty-five percent of the patients had received removable upper and lower partial denture. Only 21.5% received either upper or lower denture. Complete denture was given to 2.9% of patients and only one (0.3%) patient had received both upper and lower complete denture (Table 3).

Table 3. Different types of prosthodontic treatment.

Prosthodontic Treatment	Number	Percentages	Confidence Intervals
Single fixed crowns	156	31.6%	(0.445, 0.565)
Three unit bridges	101	19.4%	(0.054,0.179)
Removable partial denture	165	54.6%	(0.4898,0.6021)
Complete denture	9	2.9%	(0.007, 0.586)

Confidence intervals = 95%

Table 4. Periodontal treatment given.

Periodontal Treatment	Number	Percentages	Confidence Intervals
Oral hygiene	10	3.7%	(0.0144, 0.0595)
Routine scaling	38	12.6%	(0.017,0.223)
Deep scaling	40	13.4%	(0.0953,0.1726)
Comprehensive treatment	198	67.9%	(0.6254, 0.7325)

Confidence intervals = 95%

In Table 4, majority of the patients needed comprehensive periodontal treatment (67.9%). Of this, 3.7% had healthy tissues while another 3.7% were in need of oral hygiene instruction. About 12% of the cases were in need of routine scaling for calculus or overhang removal while 13.4% needed scaling in pockets 4-5 mm deep. The 67.9% had received deep scaling in pockets deeper than 5 mm, root planing and surgical correction.

Simple extraction was done in approximately 54% of the patients due to either caries or periodontal problems. Surgical extraction in the form of disimpaction or removal of remaining roots was done in only 8.6% of the patients. The crown lengthening procedures were done for 13.1% of the patients with most of them receiving one surgical crown lengthening procedure (7.9%). (Table 5)

Table 5. Surgical procedures carried out.

Surgical Treatment	Number	Percentages	Confidence Intervals
Simple extraction	163	54%	(0.4837, 0.5962)
Surgical extraction	26	8.6%	(0.0543, 0.11762)
Crown lengthening	40	13.1%	(0.027, 0.236)

Confidence intervals = 95%

Discussion

This study assessed the dental treatment needs among Saudi female patients in the dental school clinics. The results indicated that the majority of patients needed restorative work, which agrees with the finding of others.¹⁴ Restorative treatment needed for the study population was 80% compared to only 30.81% as reported by Al-Shammery¹⁴ for Saudi patients who needed restorative treatment.

Most of the patients received periodontal treatment regardless of age, which was not in agreement with other studies¹⁵ where it was reported that in the young age group, the percentage of healthy periodontium increases. This observation could be explained by the fact the most of the patients in the study had some

prepubertal periodontitis or adult periodontitis.¹⁷ Al-Shammery et al¹⁴ reported that the need for periodontal treatment increased with age, although young Saudi patients from 6 years of age had some gingival inflammation and calculus deposits.

Prosthetic treatment given accounted for 57.5% either as removable partial denture or complete denture, with complete dentures accounting for 2.9% only. One study¹⁶ reported that Saudi patients seeking prosthodontic dental treatment accounted for 8.45% and it included removable and complete dentures. However, in another study,¹⁴ the demand for dentures was higher than the ones reported here. They reported 4.5% for complete dentures and 28.1% for partial dentures alone. Fixed prosthodontic treatment in the form of single crown or three unit bridges accounted for 84.4%.

Endodontic therapy accounted for 47.2% either as a single-root or multiple-root teeth. Extraction accounted for 31.2% of overall treatment given to patients. Al-Shammery¹⁴ demonstrated that the highest treatment demands were for restorative and periodontal treatment. In this study, the most number of treatment given was for restorative including endodontic treatment followed by periodontal treatment.

The finding that significantly more restorative and endodontic treatment are needed than removable dentures is in agreement with other epidemiological studies.^{4, 6, 12, 14} Furthermore, it was found that there was no significant difference between the age groups and the treatments given. This could be explained by the fact that a high number of young patients had lost their posterior teeth because of caries. Consequently, the choice of treatment was extraction of molars, which had to be replaced by removable prosthesis instead of fixed bridges.

From the results of this study, health planners and dentists can be alerted to the future treatment needs of regularly attending adult patients, if they need considerable amount of restorative and periodontal care. More work should be directed towards increasing the awareness and oral health education level about caries and periodontal diseases among the population. Emphasis should also be directed

towards preventive measures and the importance of oral hygiene to reduce dental caries and periodontal need.

The limitations of this study were that:

- i. the sample was not representative for the Saudi population and caution should be taken when interpreting the results.
- ii. health planners should conduct a series of treatment need surveys among different levels of society.

References

1. Spencer AJ. The estimation of need for dental care. *J Public Health Dent* 1980; 69 (2): 27-31.
2. Sheiham A, Maizels JE and Cushing AM. The concept of need for dental care. *Int Dent J* 1982; 32: 265-70.
3. Pelton WJ and Bothwell R. Forecast of dental service needs in the South. *Public Health Rep* 1958; 73: 15-21.
4. Wanman A and Wigren L. Need and demand for dental treatment. A comparison between an evaluation based on an epidemiologic study of 35-, 50-, and 65-year-olds and performed dental treatment of matched age groups. *Acta Odontol Scand* 1995; 53:318-324.
5. Davies P. Converting the need for care into demand for services. *Int Dent J* 1982; 32: 271-80.
6. Gordon SR. Measurement of oral status ad treatment need among subjects with dental prostheses: Are the measures less reliable than the prostheses? Part II: Treatment need in removable prosthodontics. *J of Prosthetic Dent* 1991, 65; 801-803.
7. Tobias B. Dental aspects of an elderly population. *Age Ageing* 1988; 17:103-10.
8. Cautley AJ, Rodda JC, Treasure ET and Spears GF. The oral health and attitudes to dental treatment of a dentate elderly population in Mosgiel, Dunedin. *NZ Dent J* 1992; 88:138-43.
9. Harrison A, Huggett R, Watson CJ, and Beck CB. A survey of complete denture prosthetics for the elderly, handicapped and difficult patients. *Br Dent J* 1992; 172:51-6.
10. Karkazis HC and Kossioni AE. Oral health status, treatment needs and demands of an elderly institutionalized population in Athens. *Eur J Prosthodont Restor Dent* 1993; 1:157-63.
11. Eddie S and Elderton RJ. Comparison of dental status determined in an epidemiological survey with prosthetic treatment received. *Community Dent Oral Epidemiol* 1983; 11:271-7.
12. Al-Khateeb TL, Al-Marsafi Al and O'Mullane DM. Caries prevalence and treatment need amongst children in an Arabian Community. *Community Dent Oral Epidemiol* 1991; 19; 277-80.
13. Zaki HA and Tamimi TM. The acute shortage of dental health manpower in Saudi Arabia. *Saudi Med J* 1984; 5(1): 17-20.
14. Al-Shammery AR. Demand for dental care in Saudi Arabia. *Annals of Saudi Medicine* 1987; 7:327-329.
15. Worthington HV, Holloway PJ, and Clarkson JE and Davies RM. Predicting which adult patients will need treatment over the next year. *Community Dent Oral Epidemiol* 1997; 25: 273-277.
16. Al-Shammery A, Guile E, El-Backly M and Lamborne A. An oral health survey of Saudi Arabia: Phase I (Riyadh). General directorate of research grants programs-King Abdull Aziz City for Science and Technology-Riyadh 1991.
17. Guile EE. Periodontal status of adults in Central Saudi Arabia. *Community Dent Oral Epidemiol* 1992; 20: 159-60.