

The edentulous patient: attitudes toward oral health status

GERIATRIC DENTISTRY

DENTISTRY HAS ASSUMED a leadership position among the health sciences by its early commitment to preventive care. Fluoride applications alone have substantially reduced the economic and human suffering caused by oral disease.¹ However, the commitment by the profession has largely overlooked the edentulous patient, concentrating on the young in the effort to protect and preserve the natural dentition. Currently, there are more than 44 million people wearing full or partial dentures who could benefit from the profession's commitment to preventive therapy.²

It is erroneously believed that attempts to educate and motivate the complete denture patient are wasted efforts, and that these patients are edentulous because they did not properly maintain their teeth, and any preventive program will be poorly received. It is assumed that edentulous patients have a fatalistic attitude toward their oral condition and that they will not perceive the benefits in routine oral hygiene procedures.

As part of a larger study that attempted to implement and evaluate the effectiveness of oral hygiene procedures for the edentulous patient, an instrument was administered that measures the perceptions and attitudes of these people toward their oral condition.

METHODS AND MATERIALS

Sample size and subject selection: Fifty-nine patients were selected from a group of 100 patients treated at the University of Michigan School of Dentistry. The initial criterion used in patient selection was that observable clinical signs of inflammation were present in the denture-bearing mucosa. The demographic composition of the denture patient population assembled for this study included 22 males and 37 females ranging from 44 to 73 years of age. The number of years these individuals had been wearing dentures varied from less than one to more than 25 years. The availability of

fewer males is not unique. In an earlier study, Olsson and Bergman³ found denture stomatitis and mucosal inflammation more frequent in women than men in a ratio of three-to-one. All patients completed the School of Dentistry medical health questionnaire, obtained an orthopantomograph, and received a thorough oral examination before acceptance into the study.

Brushing instructions: Each study patient assigned was given a soft toothbrush for use during the project. A circular scrub method of brushing was demonstrated on resilient models of the maxillary and mandibular residual ridges by a registered dental hygienist. The patients were asked to demonstrate the brushing technique on the models, and then, with the aid of a hand mirror, asked to demonstrate this same technique in their own mouths. A question and answer period followed to assure that the patients understood what was expected. The patients continued to demonstrate the technique until the instructor was satisfied that they were able to perform the brushing technique. Patients were instructed to brush the tissues 2½ minutes twice a day, each day for 30 days. If the tissues were severely inflamed, the patients were told to expect minor bleeding but instructed to continue brushing with a light touch. The patients were reappointed to return in 30 days for brushing reinstruction. The test subjects were then placed on a 60-day oral hygiene regimen designed to improve the oral health of the denture bearing mucosa. Three examiners rated the inflammation present before and after the hygiene program using the Prosthetic Tissue Index (PTI) developed and tested by Bloem and Razzoog.⁴

The testing instrument: The semantic differential is a technique devised by Osgood and others⁵ that is held, with certain reservations, to numerically measure attitudes. It is essentially a controlled association test in which the patient is presented with a concept and asked to make an association of that concept with either

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end of a series of scales made from adjectival opposites. For example, under the heading "Dentures" the patient is presented with a series of concepts associated with dentures: pleasant or unpleasant, nice or sad, valuable or worthless, clean or dirty, important or unimportant, and pleasurable or painful.

The patients were instructed to place a mark toward the extreme that is more closely associated with the concept. These marks are placed on the seven spaces provided between the adjectival opposites. The seven spaces of the scale can be assigned numbers (1 to 7, 0 to 6, or -3 to +3). The degree of association between concept and scale end can therefore be described numerically. The semantic differential used for this study was formulated to relate particularly to the edentulous adult patient and the experiences before and after oral hygiene therapy. There are no standard concepts and no standard scales; rather, the concepts and scales used in a particular study depend on the purposes of the research. Standardization, and hence comparability, lies in the allocation of concepts to a common semantic space defined by a common set of general factors, despite variability in the particular concepts and scales employed.

The testing instrument offered distinct advantages for the clinic environment. The advantages were: the patients required little additional information other than that supplied with the forms to complete the questionnaire, the instrument related specifically to the prosthetic experience, and because the instrument related to the dental experience the patients were not inclined to question the dentist's use of the tool.

Each patient completed the semantic differential before initiation of the oral hygiene program. The baseline data before therapy developed the semantic space for each subject and his or her dental perceptions. At the completion of the program, the patients again completed the questionnaire to allow for comparisons of the perception of dental concepts.

RESULTS

Management of data: The semantic differential has been interpreted in two ways, using nonparametric methods. First, a direct comparison was made of the mean factor score distributions using the Mann-Whitney U Test, and a comparison of the mean factor score rankings, using the Spearman-rank coefficient test. Second, the mean distance scores were

compared, using the Mann-Whitney U Test, and the mean distance scores were ranked and compared using the Spearman-rank coefficient test.

Semantic differential scores: There was little change in the patient's evaluation of "false teeth," "my appearance with dentures," "chewing comfort," or "dentures," between the pre- and post-hygiene periods. However, there was a significant change ($P = > .05$) in the pre- and post-hygiene evaluations for the concept "gums under my dentures" (Table 1). Thus, on the evaluative, potency, and activity factor, the patients were more positive about the concept "gums under my dentures" after the oral hygiene regimen.

Cuts were made to segregate out the patients with low (<1) and high (>2) PTI scores. These groupings were then compared to determine if trends existed in the patient's attitudes toward their oral status vs the actual clinical level of health.

Initial attitude versus pre-oral hygiene prosthetic tissue index: The data analysis strongly indicated that those individuals with healthier mouths had more positive opinions of the concepts dentures ($P < .05$), chewing comfort ($P > .05$), and false teeth ($P > .05$). Although not significant at the .05 level, the concepts "gums under dentures" and "my appearance with dentures" also illustrated a more positive semantic space (Table 2).

Completion attitudes vs post-oral hygiene prosthetic tissue index: At the completion of the oral hygiene regimen, the trend of those patients with clinically healthier mouths having a more positive opinion of the tested concepts continued (Table 3). The patients with low PTI

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Table 1. Factor score distributions (comparing pre- and post-experiment semantic differential scores) illustrating improvement of patient perceptions of "gums under my denture."

Concept	Factor	Significance level
Dentures	Evaluative	$P < .05$
	Potency	$P < .05$
	Activity	$P < .05$
Chewing comfort	Evaluative	$P < .05$
	Potency	$P < .05$
	Activity	$P < .05$
Gums under my dentures	Evaluative	$P > .05$
	Potency	$P > .05$
	Activity	$P > .05$
False teeth	Evaluative	$P < .05$
	Potency	$P < .05$
	Activity	$P < .05$
My appearance with dentures	Evaluative	$P < .05$
	Potency	$P < .05$
	Activity	$P < .05$

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Table 2. Prehygiene PTI scores of patients with low (< 1) and high (> 2) degrees of inflammation, compared with their initial semantic differential scores.

Concept	Significance level
Dentures	$P > .05$
Chewing comfort	$P > .05$
Gums under my dentures	$P < .05 (.07)$
False teeth	$P > .05$
My appearance with dentures	$P < .05 (.09)$

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scores rated all concepts significantly more positive ($P > .05$).

DISCUSSION

The relationship of concepts to each other can be viewed as a three-dimensional model, in which for each of the three factors—evaluative, potency, and activity—there are axes at right angles to each other. (Mathematically, the distance between two concepts is calculated as the square root of the sum of the squared difference between these three factors.) Two concepts similar in meaning would have low distance scores, whereas those that are widest apart in meaning would have high scores.

Before the experimental period, the health intervention patients were inclined to place all the concepts within a small semantic space, and the mean scores were grouped closely together. After the experimental period, the patients formed a semantic space with the concepts dentures, chewing comfort, false teeth, and my appearance with dentures. This space was isolated from the semantic space formed by "gums under my dentures." There was a significant change ($P > .05$) in the patients' perceptions or evaluations for this concept when comparing responses before and after the oral hygiene program. The patients were more positive about "gums under my dentures", and also thought this concept was more important to them than they did before the study.

Clinically, observed oral conditions also tended to relate to the patients' perceptions of their oral situation. Those individuals with re-

duced amounts of inflammation in the denture bearing mucosa scored all concepts more positively than those with significant amounts of inflammation. Although this conclusion may appear obvious, it is inconsistent with results of similar studies that seemed to suggest that edentulous patients have little knowledge about the extent of their tissue health.⁴ It appears that by focusing attention of the edentulous patient on tissue response, attitudes and perceptions were altered and oral conditions were improved.

Edentulous patients, like those with a dentition, require a rationale for understanding and accepting treatment. To a substantial degree, difficulties in communication between dentists and patients account for failures to adhere to oral hygiene regimens. If the dentist regards the patient as incapable or disinterested he or she may not attempt to communicate but will merely prescribe.

The management of abused oral tissues is a responsibility shared by dentist and patient. The dentist must bear the responsibility for providing the professional care, but the patient is responsible for oral health hygiene and the seeking of professional care on a regular basis. Given the demographic data predicting large increases in our aged population, knowledge of the oral health problems of the elderly must receive the attention accorded younger individuals.

The semantic differential used in the present study may be regarded as a useful tool for portraying the psychological dimensions of oral health in the elderly edentulous population. Its most promising use may be as one component of a health status index that also includes sensitive measures of physical health and social conditions.

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