Dissatisfaction with Oral Health Status in an Older Adult Population

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Abstract

Objectives: *The aim of this study was to assess dissatisfaction with oral health in an older adult population and to identify factors associated with dissatisfaction.* ***Methods:*** *Data were obtained from 907 community-dwelling older adults aged 50 years and older using personal interviews and clinical examinations. Bivariate and multivariate analyses examined the relationships among dissatisfaction with oral health and a variety of sociodemographic variables, clinical oral health measures, and measures of the functional and psychosocial impact of oral disorders.* ***Results:*** *Overall, 14.3 percent of respondents were dissatisfied with their ability to chew, 21.6 percent with their dental appearance, and 5.6 percent with their ability to speak clearly. Almost one-third (30.8%) were dissatisfied with at least one of these dimensions of oral health. Edentulous subjects were more likely to be dissatisfied than dentate subjects. The multivariate regression model for dentate subjects contained seven variables that explained 31 percent of the variance in dissatisfaction scores. For the edentulous, the model contained three variables that accounted for 53 percent of the variance.* ***Conclusions:*** *These results suggest that demographic, clinical, and psychosocial impact variables are associated with dissatisfaction with oral health. However, psychosocial impact variables had by far the strongest independent effect. [J Public Health Dent 1997;57(1):40-7]*

Key Words: dissatisfaction with oral health, older adults.

In response to changes in concepts of health and advances in the assessment of health status, a number of investigators have developed subjective oral health status indicators (1-3). These measure the extent to which oral disorders compromise functional, social, and psychological well-being and complement the clinical measures usually used as outcome measures in health surveys and clinical trials.

Although these measures assess the frequency with which various populations experience oral health-related events such as difficulty chewing some foods, avoiding smiling, feeling self-conscious, or being unable to sleep, they give no indication of the meaning and significance of these events to the individuals concerned. In a study of older Canadians, Locker (4) found that 20.4 percent reported being unable to eat foods they would like to eat and 5.2 percent reported avoiding eating with others because of problems chewing. However, whether problems such as these are viewed as normal or inevitable consequences of aging or major detriments to the quality of life is not known.

A number of solutions to this problem of meaning and significance exist. One is to use measures of general health perceptions and expressions of satisfaction with oral health status. Stewart and Ware (5) have suggested that general health perceptions, self-ratings of health status, and expressions of satisfaction or dissatisfaction allow individuals to integrate distinct dimensions of health such as functioning, symptoms, and feelings of well-being. Moreover, they incorporate each person's values, expectations, social and cultural backgrounds, and beliefs about what it is to be healthy. They suggest that whether or not people are satisfied with their health status is more important than self-perceived levels of health, since this incorporates what can be called a contextual component. That is, a perceived level of health may be satisfactory to one person given the context of that person's life as a whole, but unsatisfactory to another who exists within a different personal context.

Evidence from the medical literature suggests that individuals' evaluations of their personal health are often discordant with objectively measured health status (5,6). Similar findings have been reported in the dental literature, with numerous studies having commented on the gap between professionally defined oral health status and needs for dental treatment and the perceptions of patients with respect to their status and needs (7-9). The relatively few studies that have examined satisfaction with oral health status reached similar conclusions (10-14). Although associations among satisfaction and sociodemographic, cultural, and dental care factors were found, clinical conditions appeared to have little effect. However, the overall explanatory power of those variables showing associations with satisfaction was weak and some investigators have expressed uncertainty as to how explanatory models might be improved (12).

However, the inability to predict satisfaction and dissatisfaction with oral health may be due to the limited types of variables included in these studies. They did not include variables that appear to link clinical indicators and general oral health perceptions including satisfaction. This missing layer of variables consists of measures of the functional, social, and psychological impact of oral conditions. More recently, published studies have indicated that these factors are often the strongest predictors of self-perceived need for dental care (9) and self-ratings of oral health (15,16).

The aim of this paper, then, was to

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assess dissatisfaction with oral health in an older adult population and to examine its relationship with a wide range of sociodemographic factors, clinical and psychosocial measures of oral health.

Methods

The data on which this paper is based were obtained as part of the baseline phase of the Ontario Study of the Oral Health of Older Adults. This study is a longitudinal assessment of the oral health and treatment needs of a random sample of persons aged 50 years and older living independently in two metropolitan and two non-metropolitan communities in Ontario, Canada.

At baseline, subjects were identified by means of a telephone interview survey based on random digit dialing. Additional data collection methods included a personal interview, clinical examination, and self-complete questionnaires. Sociodemographic data and data on satisfaction with oral health were obtained by means of the personal interview. The clinical examination was used to collect data on oral diseases, denture quality, and treatment needs. Further details of the study design and research procedures and the prevalence of oral diseases in this population can be found elsewhere (17,18).

Sociodemographic and Other Data. The sociodemographic variables were age, sex, marital status, education, and household income. In the analysis age was collapsed into three groups (50 to 64 years, 65 to 74 years, and 75 years and older); three levels of education attainment were used (less than high school, high school, and beyond high school); and income was stratified into four categories (less than $20,000 per year, $20,000 to $39,999, $40,000 to $59,999 and $60,000 and over). Subjects were classified as currently married/common law or not now married. Data also were collected on self-rated general health status (excellent/good or fair/poor), dental insurance coverage (yes/no), and use of dental services (regular/irregular).

Measurement of Dissatisfaction with Oral Health. Levels of satisfaction with oral health were measured by three questions: "How satisfied are you with ... your ability to chew? ... your ability to speak clearly? ... the appearance of your teeth and/or dentures?" The response format was a Likert-type scale, with the following categories and numerical response codes: very satisfied (1), satisfied (2), dissatisfied (3), and very dissatisfied (4). Response codes to the three items also were summed to give an overall score with higher values indicating dissatisfaction. These three items and the overall score were used in assessing the associations between dissatisfaction with oral health and its components and continuous independent variables. The overall dissatisfaction score was also used as the dependent variable in linear regression analyses.

In assessing associations with categorical independent variables, the responses to the three items were reduced to "satisfied" (very satisfied, satisfied) and "dissatisfied" (dissatisfied, very dissatisfied). The proportion dissatisfied with each dimension was treated as the dependent variable in these analyses, along with the proportion dissatisfied with one or more of these aspects of oral health. The proportion dissatisfied with each dimension of oral health also was used as the dependent variable in logistic regression analyses.

Clinical Measures of Oral Health. All remaining teeth, except third molars, were assessed for dental caries and periodontal disease. A mirror, explorer, and pressure-sensitive periodontal probe were used for the examination. No radiographs were taken and calculus was not removed prior to the examination.

Indicators of tooth loss included edentulousness (loss of all natural teeth), the number of missing teeth, and the number of remaining natural functional units (a pair of opposing natural teeth that contact during function). Dental caries experience was measured by means of a count of the number of decayed, missing, and filled tooth surfaces. Coronal and root caries were scored separately. Periodontal health was assessed by measuring periodontal attachment loss (PAL) at two sites on each remaining tooth and reported using the following indicators: mean attachment loss, proportion of sites examined with loss of 2 mm or more, and proportion of sites examined with loss of 5 mm or more.

Based on the findings of the clinical examination, each subject was classified according to whether or not he or she needed the following categories of treatment: restorative, periodontal, prosthodontic, extractions, or immediate treatment for the relief of pain or infection.

Functional and Psychosocial Measures. An index of chewing capacity was constructed from responses to questions concerning the ability to chew or bite six foods that differed in texture and consistency. The response format was a simple yes (scored 0) and no (scored 1). Index scores ranged from 0, indicating no limitation in chewing function, to 6, indicating the maximum limitation. Oral and facial pain was assessed by a nine-item inventory that included toothache, sensitivity to hot and cold, pain in the jaw joints, and pain from dentures. Other oral symptoms were assessed by a 13-item inventory that included sore spots, mouth dryness, bad breath, and bleeding gums. Scores were obtained by a count of the number of symptoms experienced in the four weeks prior to the interview. The psychosocial impact of oral disorders was assessed by seven items referring to problems with eating, communication, and social relations. Scores of 1 to 5 were given to the following response categories: never, sometimes, fairly often, very often, all the time. Response codes were summed to obtain a psychosocial impact scale score. These measures and their psychometric properties have been described in more detail elsewhere (3,4,19).

Analysis of Data. The associations between personal characteristics, clinical variables, dental treatment needs, functional and psychosocial index scores, and dissatisfaction with oral health were determined using correlations, *T*-tests, and chi-square tests. Predictors of dissatisfaction were identified by linear regression analyses. In an initial set of analyses the independent variables were entered in blocks beginning with sociodemographic and personal variables; then clinical and treatment need variables; and finally, functional and psychosocial indicators. Separate analyses were undertaken for dentate and edentulous respondents.

A further set of regression analyses were undertaken using responses to the three satisfaction questions as dependent variables. The aim here was to determine if predictors of dissatis-

faction varied across the three dimensions of oral health status. Because the use of the four-item Likert scales as dependent variables resulted in major violations of linear regression assumptions, logistic regression analyses were used. Again, separate analyses were undertaken for dentate and edentulous subjects. In all analyses using edentulous subjects, the only clinical variable used was need for prosthodontic treatment.

Results

Characteristics of Subjects. Interviews and clinical examinations were completed for 907 subjects. The response to the study, an analysis of nonresponse and an estimation of po-

TABLE 1
Percent Dissatisfied with Oral Health by Dental Status

Dissatisfied with	Dentate (n=713)	Edent. (n=194)	P-value
Ability to chew			
Yes	10.7	27.8	<.0001
No	89.3	82.2	
Appearance of teeth/dentures			
Yes	21.3	23.8	ns
No	76.7	66.2	
Ability to speak			
Yes	4.2	10.8	<.0001
No	95.8	89.2	
1 or more aspects of oral health			
Yes	27.6	42.3	<.0001
No	76.4	57.7	

TABLE 2
Percent Dissatisfied with Oral Health by Sociodemographic, Dental Care, and General Health Variables

	Dissatisfied with							
	Ability to Chew		Dental Appearance		Ability to Speak Clearly		One or More Aspects	
Variables	Dentate	Edentulous	Dentate	Edentulous	Dentate	Edentulous	Dentate	Edentulous
Sex								
Male	11.6	18.4*	22.0	22.5	4.2	10.5	28.3	35.5
Female	9.8	34.2	20.9	24.8	4.3	11.1	27.1	47.0
Age (years)								
50–64	10.3	35.3†	22.2	25.8	4.6	11.2	27.2	48.3
64–74	11.7	18.6	22.4	32.4	3.1	12.7	29.1	42.3
75+	10.8	6.5	13.5	24.2	5.5	6.1	24.3	27.3
Income								
<$20,000	17.5†	31.6	27.1‡	24.7	7.9*	12.6	38.5†	40.0
$20,000–39,999	7.7	21.1	22.0	30.6	4.4	7.9	28.6	47.4
$40,000–59,999	8.6	**	19.0	**	3.8	**	23.8	**
$60,000+	5.2	**	6.3	**	1.6	**	11.1	**
Education								
< High school	14.8*	34.4	21.0	22.0	4.9	9.8	30.9	45.9
High school	13.5	23.6	25.0	22.3	4.4	8.5	31.4	39.6
>High school	7.0	29.6	17.3	33.3	4.0	22.2	22.8	44.4
Marital status								
Married	8.4*	22.1	18.7	23.0	2.3‡	9.1	23.3†	39.0
Not married	13.8	31.9	24.0	24.6	6.7	12.1	32.6	44.8
Dental visit								
Regular	7.3†	**	16.3*	**	2.9*	**	21.5¶	**
Irregular	20.1	26.3	34.4	23.6	7.2	10.1	45.0	40.8
Dental insurance								
Yes	7.4*	26.2	19.9	28.1	3.4	10.8	26.1	46.2
No	13.9	28.9	22.8	22.2	5.1	9.9	29.5	40.5
General health								
Excellent–good	9.7*	22.5*	18.5†	21.4	3.1†	10.1	24.7‡	38.0
Fair, poor	15.7	39.1	33.9	27.4	9.4	12.5	41.7	50.0

*P<.05.
†P<.01.
‡P<.001.
¶P<.0001. All P-values based on chi-square test.
**Unstable rates due to small numbers.

tential bias due to nonresponse are described extensively elsewhere (20). A comparison of the sex and age characteristics of the study subjects and census data for the target population indicates that the former are broadly representative of the latter, although those aged 75 years and older appear to be underrepresented.

Of the 907 subjects, 78.6 percent were dentate; however, only 9.3 percent retained all 28 natural teeth. Among those who had lost some of their teeth, 39.9 percent had one or more prosthetic replacements. Almost all edentulous respondents (96.4%) wore dentures.

Almost one-third of the dentate had lost 12 or more teeth, 35.6 percent had one or more decayed coronal surfaces, and 27.5 percent had one or more decayed root surfaces. Almost 20 percent had a mean PAL of 4 mm or more. Three-quarters of the edentulous needed prosthodontic treatment. Scores on the functional and psychosocial scales indicated that 30.0 percent were unable to chew at least one of the six foods, 38.2 percent had experienced pain, 74.3 percent had other oral symptoms over the preceding four weeks, and 37.7 percent reported some kind of negative impact on daily living.

Dissatisfaction with Oral Health. Overall, 14.3 percent of the respondents were dissatisfied with their ability to chew, 21.6 percent were dissatisfied with the appearance of their teeth and/or dentures, and 5.6 percent were dissatisfied with their ability to speak clearly. Almost one-third (30.8%) expressed dissatisfaction with one or more of these aspects of oral health.

Edentulous respondents were more likely to be dissatisfied with at least one dimension of their oral health status than those who were dentate (42.3% vs 27.6%; $P<.0001$). They were more often dissatisfied with their chewing and speaking ability; but there was no difference in the percent dissatisfied with the appearance of teeth and/or dentures (Table 1). Among the dentate, those who wore one or more removable partial dentures were more likely to be dissatisfied than those who did not (35.6% vs 24.0%; $P<.001$).

Dissatisfaction with Oral Health According to Personal Characteristics. The associations between personal characteristics and dissatisfaction are shown in Table 2 for dentate and edentulous subjects separately. Among dentate subjects, neither sex nor age were associated with dissatisfaction. However, systematic variations were observed with respect to income, marital status, and dental visiting patterns. Low-income subjects, those not now married, those who visited the dentist on an irregular basis, and those who rated their general health as only fair or poor were more likely to be dissatisfied with their oral health status. Education and dental insurance coverage were associated with dissatisfaction with the ability to chew only.

Among the edentulous, women were more likely than men to be dissatisfied with their ability to chew, and

TABLE 3
Correlations Between Clinical Indicators and Dissatisfaction Scale Scores: Dentate Subjects

Dissatisfaction Scores	Chewing	Appearance	Speaking	Overall
DMFS	0.26*	0.05	0.19*	0.20*
# missing teeth	0.24*	0.03	0.18*	0.18*
# decayed crown surfaces	0.11†	0.20*	0.14*	0.19*
# decayed root surfaces	0.12†	0.14*	0.13*	0.17*
Mean PAL	0.24*	0.14*	0.20*	0.24*
Proportion of sites with ≥5 mm PAL	0.24*	0.14*	0.20*	0.24*
# natural functional units	–0.26*	–0.07	–0.21*	–0.22*

*$P<.001$.
†$P<.01$.

TABLE 4
Percent Dissatisfied with Oral Health by Clinically Defined Treatment Needs

Dissatisfied with Treatment Needs	*n*	Ability to Chew	Appear. of Teeth/ Dentures	Ability to Speak Clearly	One or More Apects
Dentate subjects					
Restorative					
Yes	328	11.5	24.2	4.8	32.0*
No	364	9.6	18.6	3.3	23.6
Prosthodontic					
Yes	291	17.7†	31.2†	6.1*	39.9†
No	401	5.2	14.0	2.5	18.6
Extractions					
Yes	41	31.1†	35.6*	11.1*	46.7†
No	651	9.1	20.3	3.5	26.3
Immediate					
Yes	48	14.3	30.6	4.3	38.8
No	644	10.3	20.7	2.0	26.9
Periodontal					
Yes	265	13.6	25.0	5.7	33.0
No	427	12.3	19.8	3.8	27.4
Edentulous subjects					
Prosthodontic					
Yes	145	29.7	27.5*	11.0	45.5
No	47	22.9	10.9	10.4	31.3

*$P<.05$.
†$P<.01$.

TABLE 5
Correlations Between Functional and Psychosocial Indicators and Dissatisfaction Scores

Dissatisfaction Scores	Chewing		Appearance		Speaking		Overall	
	Dentulous	Edentulous	Dentulous	Edentulous	Dentulous	Edentulous	Dentulous	Edentulous
Chewing index score	0.47*	0.63*	0.21*	0.31*	0.14*	0.37*	0.36*	0.56*
# of pain symptoms	0.21*	0.32*	0.20*	0.18*	0.12*	0.26*	0.22*	0.32*
# of other symptoms	–0.06	0.11	0.02	–0.10	–0.07	0.06	–0.04	0.02
Impact scale score	0.47*	0.58*	0.40*	0.40*	0.22*	0.49*	0.47*	0.62*

*$P<.001$.

younger subjects were more likely to be dissatisfied than older subjects. Those reporting poor general health were more likely to be dissatisfied with chewing. No other significant associations were observed.

Relationship Between Dissatisfaction and Clinical Indicators. Correlations between clinical measures of oral health and dissatisfaction scores for dentate subjects are shown in Table 3. Out of 28 correlations generated, only three were not significant. However, all were relatively weak, ranging from 0.11 to 0.26.

Table 4 shows the percent dissatisfied according to clinically defined treatment needs for dentate and edentulous subjects. Among the dentate, those who needed prosthetic treatment or extractions were more likely to be dissatisfied on all four measures than those who did not. Needing restorative treatment was associated with dissatisfaction overall, but not with the three individual oral health dimensions. Neither needing periodontal care nor needing immediate treatment was associated with dissatisfaction. Among edentulous subjects, needing prosthodontic treatment was associated with dissatisfaction with appearance only.

Associations with Functional and Psychosocial Indicators. Three of the four functional and psychosocial indicators were significantly correlated with the four dissatisfaction scores. The number of nonpain oral symptoms had no impact on satisfaction. These correlations were stronger than those between clinical indicators and dissatisfaction scores. For the dentate they ranged from 0.12 to 0.47, and for the edentulous from 0.18 to 0.63 (Table 5).

TABLE 6
Results of Regression Analysis for Dentate Subjects
Dependent Variable: Overall Dissatisfaction Score

Independent Variable	Beta Coefficient		
	Step 1	Step 2	Step 3
Sex	.0324	–.0034	.0199
Age	–.0926*	–.1227*	–.0945*
Marital status	–.0309	–.0800	–.1012*
Income	–.1987†	–.1561‡	–.1326‡
Education	–.0409	.0091	–.0171
Regular dental visits	.1622†	.0335	.0525
Dental insurance	.0216	.0474	.0834
Self-rated general health	.1212‡	.0829	.0689
Number of missing teeth		.0291	–.0138
Number of decayed crown surfaces		.1236*	.1278*
Number of decayed root surfaces		–.0031	–.0501
Mean PAL		.1521‡	.1125*
Wearing RPD		.0259	.0106
Need prosthodontic treatment		.1610‡	.1119*
Need extractions		.0194	–.0814
Chewing index score			.0726
Number of pain symptoms			.0826
Number of other oral symptoms			–.0166
Impact scale score			.3347†
R^2	.12	.18	.31

*$P<.05$.
†$P<.001$.
‡$P<.01$.

Results of the Regression Analyses. The dependent variable in the analyses was the overall dissatisfaction score. All independent variables were entered, except for three (DMFS, the proportion of periodontal sites with loss of attachment of 5 mm or more, and the number of natural functional units), which showed unacceptably high correlations with other variables. Variables were entered in blocks beginning with sociodemographic and personal variables, followed by clinical and treatment needs variables,

and finally functional, pain, and psychosocial variables. The analysis for the dentate included 464 subjects with complete data, while the analysis for the edentulous included 118 subjects with complete data.

For the dentate, the sociodemographic and personal variables alone explained only 12 percent of the variance in dissatisfaction scale scores. The variance explained increased to 18 percent following the addition of clinical variables and to 31 percent after the addition of the functional and psychosocial impact variables (Table 6).

The final model contained seven variables. The sign of the regression coefficients indicates that dissatisfaction scale scores were higher among younger subjects, the not now married and those from low-income households. Scores were higher in those with more periodontal attachment loss, more decayed crown surfaces, those in need of prosthodontic treatment, and subjects reporting more psychosocial impacts. Only two variables, regular dental visits and self-rated general health, entered the initial model, but failed to enter the models at steps 2 and 3.

For edentulous subjects the sociodemographic and clinical variables explained only 7 percent of the variance in dissatisfaction scores (Table 7). When the functional and psychosocial variables were added, the percent of variance explained increased to 53 percent. However, only three variables had significant independent effects. Dissatisfaction scores were higher among the not now married, those needing prosthodontic treatment, and those with higher levels of psychosocial impact.

Table 8 summarizes the results of logistic regression analyses undertaken to identify predictors of dissatisfaction with the individual components of oral health status. For both dentate and edentulous subjects, different variables predicted dissatisfaction with these components. The psychosocial impact score was the only variable to enter all six models. As with the analyses of overall dissatisfaction scores, the models for edentulous subjects contained fewer variables, yet were more powerful when judged in terms of sensitivity statistics.

Finally, the beta coefficients for variables showing significant associations with the overall dissatisfaction score and the odds ratios derived from the logistic regression analyses (not

TABLE 7
Results of Regression Analysis for Edentulous Subjects
Dependent Variable: Overall Dissatisfaction Score

	Beta Coefficient		
Independent Variable	Step 1	Step 2	Step 3
Sex	–.0551	–.0619	–.1275
Age	–.0286	–.0130	.1221
Marital status	.0189	–.0017	–.2215*
Income	–.0922	–.1136	–.0259
Education	.0585	.0797	.0899
Regular dental visits	–.0059	–.0088	.0388
Dental insurance	.0847	.1030	–.0208
Self-rated general health	.1525	.1189	.0152
Need prosthodontic treatment		.1749†	.1835*
Chewing index score			.1544
Number of pain symptoms			–.0003
Number of other oral symptoms			–.0779
Impact scale score			.5961‡
R^2	.05	.07	.53

*$P<.01$.
†$P<.05$.
‡$P<.001$.

TABLE 8
Predictors of Dissatisfaction with Different Dimensions of Oral Health

Dissatisifed with	Dentate	Edentulous
Ability to chew	Chewing index score	Chewing index score
	Psychosocial impact score	Psychosocial impact score
	Sex	
Mode sensitivities/specificities	33.3%; 98.1%	72.4%; 96.7%
Appearance of teeth/dentures	Income	Psychosocial impact score
	Dental visiting	
	Number of missing teeth	
	Need prosthodontic treatment	
	Psychosocial impact score	
Mode sensitivities/specificities	20.2%; 96.4%	55.2%; 96.6%
Ability to speak clearly	Dental insurance	Income
	Psychosocial impact score	Psychosocial impact score
Mode sensitivities/specificities	20.0%; 99.8%	50.0%; 97.2%

shown) indicated that the psychosocial impact score had the strongest independent effect in all regression models.

Discussion

Following Stewart and Ware (5), we have argued that expressions of satisfaction and dissatisfaction are important oral heath status indicators since they synthesize objective health states, subjective responses, and culturally based values and expectations.

The majority of the older adults in this study were satisfied with their oral health even though high levels of untreated disease and need for dental care were evident. Difficulties chewing, pain, and other oral symptoms and impacts on daily life were also common. However, almost one-third expressed dissatisfaction with one or more aspects of their oral health status. Dissatisfaction was higher among edentulous subjects, more than two-fifths of whom were dissatisfied. Chewing was the main problem expressed by the edentulous and appearance the main problem expressed by the dentate. These figures suggest that the quality of life of substantial proportions of these older adults is compromised in some way by oral conditions and their sequelae.

Evidence from the few studies focusing on satisfaction with oral health status tends to support the findings of most studies of self-perceived oral health and need for treatment. That is, the majority of people view their oral health favorably, lay views often appear out of step with professionally defined needs, and clinical measures of disease are usually relatively weak predictors of patient perceptions of oral health (7-14).

An obvious reason for the weak associations between clinical variables and dissatisfaction observed here is that much of the disease detected upon clinical examination was asymptomatic and likely to be unknown to the individuals concerned. However, the explanatory power of the regression models improved markedly when functional and psychosocial measures were included. In fact, the most consistent predictor of dissatisfaction with oral health overall and its three components was a psychosocial impact score. Those whose activities of daily living are most compromised by oral disorders are the most likely to be dissatisfied. A possible explanation for the explanatory power of this variable is that psychosocial index scores and dissatisfaction scores are measuring the same underlying construct. However, if this were the case, correlation coefficients between these scores should be stronger than those observed (0.47 for the dentate and 0.62 for the edentulous).

These results tend to support the theoretical propositions implicit in Stewart and Ware's (5) discussion of health status measures. That is, functional and psychosocial indices of the kind used here are essentially descriptive measures, while general health perceptions and expressions of satisfaction-dissatisfaction are evaluative measures. Moreover, the relationship between the two is influenced by other variables so that not all those whose lives are compromised by oral disorders are necessarily dissatisfied.

For example, although the psychosocial impact score was the most important predictor of the overall dissatisfaction score, sociodemographic and clinical variables entered the model for both the dentate and the edentulous. Interestingly, among the dentate, younger subjects were more likely to be dissatisfied than older subjects after controlling for other variables. This probably reflects age-related differences in attitudes and expectations with regard to health and the accommodation of older people to oral health problems. The associations with marital status and income reflect relationships that have been reported widely in the literature.

The health of lower income groups and the not now married is worse than that of higher income groups and the married (21,22). Since the higher levels of dissatisfaction expressed by these groups is not due to higher levels of disease or more psychosocial impacts, they may have their origins in psychological factors linked to material and social deprivation. Whatever the explanation for the link between these variables and satisfaction, the analysis does demonstrate that the overall response to oral conditions and their effects is influenced by the social contexts in which people live (23,24). Elucidating the particular features of these contexts offers a useful avenue for further research (25).

A further potential implication of these results is that the provision of dental care will not improve patient satisfaction with oral health substantially if it does not influence the impact oral conditions have on daily life. This conclusion may mean that measures of patient satisfaction may not be useful as outcome measures in evaluations of interventions that treat disease, but do not improve oral health as it is perceived by patients. Studies evaluating dental care interventions for older adults are necessary to explore these hypotheses. In addition, as Gilbert et al. (9) have suggested, educational efforts that attempt to close the gap between need and demand for dental care should link oral health and the quality of life and not focus on dental disease alone.

Further research based on qualitative methods also is needed to further our understanding of why some people are satisfied with their oral health even when they have missing teeth, untreated decay, and difficulties with eating, communication, and social relationships. In this regard, quantitative methods are ultimately limited. Illness narratives, which are the accounts people give of their health and other events in their lives, are one way in which social and cultural influences on health and illness can be revealed (26). Clarifying the ways in which peoples' perceptions of their oral health are shaped can lead to a more comprehensive appreciation of disease and its outcomes in older people and the forces that influence their use of health services and responses to dental care.

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