Original Article

Factors Affecting Patient Satisfaction after Orthodontic Treatment

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Abstract: The objective of this study was to identify factors that may affect patients' satisfaction with their dentition after orthodontic treatment. Fifty patients (20 males and 30 females; mean age 20.7 ± 4.2 years) who successfully had finished fixed orthodontic treatment were included in the study. All subjects were treated with upper and lower fixed orthodontic appliances for an average duration of 19 ± 4 months and were in retention stage (6–12 months) with upper Hawley and lower fixed bonded retainers. Dental Impact on Daily Living questionnaire was used to assess the effect of orthodontic treatment on daily living and satisfaction with the dentition in the study sample. The NEO Five Factor inventory was used to assess personality profiles in the study sample. Comparisons between groups were made using chi-square test. Personality traits were found to be correlated with patients' satisfaction with their dentition after orthodontic treatment. Higher neuroticism scores had a significant negative relationship with total satisfaction with the dentition ($P < .05$). Age, sex, and pretreatment orthodontic treatment need had no relationship with the patient's satisfaction. Patients treated nonextraction showed more dissatisfaction with their dentition ($P < .05$). In orthodontically treated patients, higher neuroticism scores were associated with lower levels of satisfaction with the dentition. (*Angle Orthod* 2006;76:422–431.)

Key Words: Satisfaction; Personality

INTRODUCTION

Among the most important goals of dental care is helping patients in their attempts to reach an acceptable level of satisfaction with their oral cavity and dentition.[1] Dentofacial problems have known definitive effects on patient satisfaction with their dentition because it affects esthetics, performance, and function.[2,3] It has been shown that people who are dissatisfied with their facial appearance often express more dissatisfaction with their teeth.[4]

Satisfaction with dental appearance has been correlated with age and sex. It has been reported that satisfaction with dentofacial appearance decreases with age.[5–7] Therefore, adults are expected to be less satisfied with their dentofacial appearance than an adolescent.

Females are more dissatisfied with the appearance of their dentition than are males.[5,8] It has been shown that malaligned teeth concern girls more than boys,[9,10] and females perceive more need for orthodontic treatment than males.[8–11]

Personality has certain effects on patient satisfaction with their dentofacial conditions and treatment. Extroversion, anxiety, calmness, and warmth have been proved to have well-defined effects on patient satisfaction and patient opinion regarding dentofacial esthetics.[12] Satisfaction with dental treatment has been correlated and predicted by certain personality traits such as self-esteem, self-confidence, obedience, accommodating, calmness, extroversion, anxiety, warmth, neuroticism, and conscientiousness.[12–14] It has been reported that female patients with high neuroticism scores and male patient with high introversion scores are less likely to be satisfied immediately after orthognathic surgery.[15]

Satisfaction with orthodontic treatment is poorly covered in the literature. This study was undertaken to identify the possible effect of patient sex, age, extraction therapy, severity of orthodontic problem, and personality traits on their satisfaction with orthodontic treatment.

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MATERIALS AND METHODS

A total of 64 patients (mean age 20.7 ± 4.2 years, median, 22 years; range, 13 to 28 years) were randomly selected from records of the Orthodontic Department at Jordan University of Science and Technology Dental Teaching Center in Irbid. The patients were given two questionnaires, the Dental Impact on Daily Living (DIDL) questionnaire for assessment of his/her satisfaction after orthodontic treatment and the NEO Five Factor Inventory (NEO-FFI) questionnaire for assessment of patient's profile and traits. Ten of the patients did not return the questionnaire, and four of them did not fill it completely (response rate 0.84%). Thus, 50 subjects were included in this study.

The DIDL questionnaire has 36 items that are placed in five major categories and tackles five major dimensions of dental satisfaction, namely appearance, pain, oral comfort, general performance, and chewing and eating (Appendix 1). The DIDL scale measures the effect and the proportional importance of each dimension to the patient. The scale has a score from 0 to 10 to show the relative importance of each dimension to the patient.[2,16]

The DIDL questionnaire is a reliable, valid, and comprehensive test to measure patient satisfaction and effect of dental disease on patient daily living.[2,16,17] The test has shown the ability to assess satisfaction with different aspects of oral cavity and dental status, and for these reasons, it was selected for this study. Orthodontic problems can affect many aspects of dental esthetics and function, and these aspects are well covered by the DIDL test.

Assessment of patients' personality profiles and traits was carried out using the NEO-FFI.[18] NEO refers to Neuroticism (N), Extroversion (E), and Openness (O) (Appendix 2). This test provides a comprehensive assessment of personality using five major domains namely Neuroticism, Extroversion, Openness, Agreeableness, and Conscientiousness. The test consists of 60 items, 12 for each domain, and the response to each item is chosen from five answers. NEO-FFI is short, highly valid and reliable, easy to answer and score, easy for the researchers to interpret, able to tackle the five dimensions of personality accurately, and well documented in the literature.[19–21]

NEO-FFI is practical in dental studies because it saves time, is easy to score, and yet is valid, reliable, and comprehensive for the assessment of the five dimensions of the personality.[17]

Subjects were subdivided into two groups according to sex (20 males, 30 females; 19 subjects ≤18 years, 31 subjects >18 years). Pretreatment Index of Orthodontic Treatment Need (IOTN) scores showed 26 subjects with borderline need and 24 subjects with high need. A total of 25 patients were treated with the extraction of teeth, and 25 subjects were treated nonextraction. All subjects were treated with upper and lower fixed appliances for an average duration of 19 ± 4 months and were in retention 6–12 months with upper Hawley and lower fixed bonded retainers. The inclusion criteria included no mental retardation and no severe medical illness that might affect their ability to understand and complete the questionnaires or to cooperate with the investigator. Patients' informed consent was obtained before going any further in the study.

Pretreatment and posttreatment study models were assessed for each patient to evaluate the success of the orthodontic treatment using the Peer Assessment Rating (PAR) index. All patients had a reduction in the weighted PAR of more than 80% indicating a good standard of treatment.[22]

Data analysis

Data analysis was carried out by the Statistical Package for Social Science (SPSS) computer software version 11.0 (Chicago, Ill). Descriptive statistics were obtained, and means, standard deviation, and frequency distribution were calculated. Comparisons between groups were made using a chi-square test. Correlations between personality traits and satisfaction were performed using Pearson's correlation test.

Method error

Ten subjects answered the questionnaire twice with a one-week interval. Reliability was carried out on all questions using correlation coefficients. The correlation coefficients were high and ranged from 0.82 to 0.88. Intraexaminer reliability was performed on the IOTN and PAR scores using kappa statistics.[23] Kappa was 0.79 for the IOTN and 0.88 for PAR scores indicating substantial agreement.

RESULTS

Satisfaction with orthodontic treatment

Total satisfaction scores of the DIDL questionnaire showed that 4% of the treated patients were dissatisfied with their teeth and scored below 0, 62% were relatively satisfied and scored between 0 and 0.69, and 34% were totally satisfied with their teeth. The highest total satisfaction score was 0.94, whereas the lowest total satisfaction score was −0.48, with a mean of 0.59 ± 0.28. Distribution of satisfaction outcome according to sex, age, IOTN, and extraction therapy is shown in Table 1.

Table 2 shows the distribution of subjects according to personality domains. Ten percent of subjects had low neuroticism scores, 36% had average scores, and 54%

TABLE 1. Distribution of Subjects' Satisfaction After Orthodontic Treatment

Classifying Variable	Dissatisfied	Relatively Satisfied	Satisfied
Gender			
Male (20 subjects)	0 (0%)	15 (75%)	5 (25%)
Female (30 subjects)	2 (7%)	16 (53%)	12 (40%)
Age			
Less or equal to 18 y (19 subjects)	1 (5%)	10 (53%)	8 (42%)
More than 18 y (31 subjects)	1 (3%)	21 (68%)	9 (29%)
IOTN (Index of Orthodontic Treatment Need)			
Borderline (26 subjects)	2 (8%)	15 (58%)	9 (34%)
High need (24 subjects)	0 (0%)	16 (53%)	8 (47%)
Extraction therapy			
Extraction (25 subjects)	0 (0%)	17 (68%)	8 (32%)
Non extraction (25 subjects)	2 (8%)	14 (62%)	9 (34%)
Total (50 subjects)	2 (4%)	31 (62%)	17 (34%)

TABLE 2. Frequency of Personality Domains Among the Subjects Studied

Personality Domain	Low Score	Average Score	High Score
Neuroticism	5 (10%)	18 (36%)	27 (54%)
Extroversion	10 (20%)	28 (56%)	12 (24%)
Openness	21 (42%)	25 (50%)	4 (8%)
Agreeableness	35 (70%)	12 (24%)	3 (6%)
Conscientiousness	15 (30%)	24 (48%)	11 (22%)

TABLE 3. Frequency of Individual Satisfaction Dimensions in the Study Population

Dimension	Dissatisfied	Relatively Satisfied	Satisfied
Appearance	2 (4%)	3 (6%)	45 (90%)
Pain	2 (4%)	3 (6%)	45 (90%)
Oral comfort	4 (8%)	2 (4%)	44 (88%)
General performance	13 (26%)	2 (4%)	35 (70%)
Eating and chewing	1 (2%)	3 (6%)	46 (92%)

had high neuroticism scores. Twenty percent of subjects had low extroversion scores, 56% had average scores, and 24% had high extroversion scores. Forty-two percent of subjects had low openness scores, 50% had average scores, and 8% had high openness scores. Seventy percent of subjects had low agreeableness scores, 24% had average scores, and 6% had high agreeableness scores. Thirty percent of subjects had low conscientiousness scores, 48% had average scores, and 22% had high conscientiousness scores.

Satisfaction with each dimension of the DIDL questionnaire is shown in Table 3. Ninety-two percent of subjects were satisfied with the eating and chewing dimension, 90% were satisfied with appearance and pain dimensions, 88% were satisfied with the oral comfort dimension, and 70% were satisfied with general performance dimensions.

Tables 4 through 7 show the effects of sex, age, IOTN, and extraction decision on the patients' satisfaction after orthodontic treatment. No statistically sig-

TABLE 4. Distribution of Satisfaction Scores in Respect to Gender

Dimension	Status	Male	Female	*P* value
Appearance	Not satisfied	0 (0%)	2 (4%)	.329
	Relatively satisfied	2 (4%)	1 (2%)	
	Satisfied	18 (36%)	27 (54%)	
Pain	Not satisfied	1 (2%)	1 (2%)	.084
	Relatively satisfied	3 (6%)	0 (0%)	
	Satisfied	16 (32%)	29 (58%)	
Comfort	Not satisfied	2 (4%)	2 (4%)	.469
	Relatively satisfied	0 (0%)	2 (4%)	
	Satisfied	18 (36%)	26 (52%)	
General performance	Not satisfied	6 (12%)	7 (14%)	.159
	Relatively satisfied	2 (4%)	0 (0%)	
	Satisfied	12 (24%)	23 (46%)	
Eating and chewing	Not satisfied	0 (0%)	1 (2%)	.686
	Relatively satisfied	1 (2%)	2 (4%)	
	Satisfied	19 (38%)	27 (54%)	

TABLE 5. Distribution of Satisfaction Scores in Respect to Age

Dimension	Status	Less or Equal to 18 y	Above 18 y	*P* value
Appearance	Not satisfied	1 (2%)	1 (2%)	.927
	Relatively satisfied	1 (2%)	2 (4%)	
	Satisfied	17 (34%)	28 (56%)	
Pain	Not satisfied	0 (0%)	2 (4%)	.514
	Relatively satisfied	1 (2%)	2 (4%)	
	Satisfied	18 (36%)	27 (54%)	
Comfort	Not satisfied	3 (6%)	1 (2%)	.255
	Relatively satisfied	1 (2%)	1 (2%)	
	Satisfied	15 (30%)	29 (58%)	
General performance	Not satisfied	5 (10%)	8 (16%)	.526
	Relatively satisfied	0 (0%)	2 (4%)	
	Satisfied	14 (28%)	21 (42%)	
Eating and chewing	Not satisfied	0 (0%)	1 (2%)	.717
	Relatively satisfied	1 (2%)	2 (4%)	
	Satisfied	18 (36%)	28 (56%)	

TABLE 6. Distribution of Satisfaction Scores According to Pretreatment Orthodontic Need

Dimension	Status	Borderline Need	High Need	*P* value
Appearance	Not satisfied	1 (2%)	1 (2%)	.175
	Relatively satisfied	0 (0%)	3 (6%)	
	Satisfied	25 (50%)	20 (40%)	
Pain	Not satisfied	1 (2%)	1 (2%)	.175
	Relatively satisfied	0 (0%)	3 (6%)	
	Satisfied	25 (50%)	20 (40%)	
Comfort	Not satisfied	4 (8%)	0 (0%)	.052
	Relatively satisfied	0 (0%)	2 (4%)	
	Satisfied	22 (44%)	22 (44%)	
General performance	Not satisfied	7 (14%)	6 (12%)	.987
	Relatively satisfied	1 (2%)	1 (2%)	
	Satisfied	18 (36%)	17 (34%)	
Eating and chewing	Not satisfied	1 (2%)	0 (0%)	.534
	Relatively satisfied	2 (4%)	1 (2%)	
	Satisfied	23 (46%)	23 (46%)	

TABLE 7. Distribution of Satisfaction Scores in Respect to Extraction Therapy

Dimension	Status	Extraction	Nonextraction	*P* value
Appearance	Not satisfied	1 (2%)	1 (2%)	.202
	Relatively satisfied	3 (6%)	0 (0%)	
	Satisfied	21 (42%)	24 (48%)	
Pain	Not satisfied	1 (2%)	1 (2%)	.202
	Relatively satisfied	3 (6%)	0 (0%)	
	Satisfied	21 (42%)	24 (48%)	
Comfort	Not satisfied	0 (0%)	4 (8%)	.048*
	Relatively satisfied	2 (4%)	0 (0%)	
	Satisfied	23 (46%)	21 (42%)	
General performance	Not satisfied	7 (14%)	6 (12%)	.949
	Relatively satisfied	1 (2%)	1 (2%)	
	Satisfied	17 (34%)	18 (36%)	
Eating and chewing	Not satisfied	0 (0%)	1 (2%)	.492
	Relatively satisfied	1 (2%)	2 (4%)	
	Satisfied	24 (48%)	22 (44%)	

* Significant at $P < .05$.

TABLE 8. Distribution of Satisfaction Scores in Respect to Personality Traits

Personality Domain	Status	Low	Average	High	*P* value
Neuroticism	Not satisfied	0 (0%)	1 (2%)	1 (2%)	.021*
	Relatively satisfied	0 (0%)	11 (22%)	20 (40%)	
	Satisfied	5 (10%)	6 (12%)	6 (12%)	
Extroversion	Not satisfied	1 (2%)	1 (2%)	0 (0%)	.785
	Relatively satisfied	6 (12%)	18 (36%)	7 (14%)	
	Satisfied	3 (6%)	9 (18%)	5 (10%)	
Openness	Not satisfied	0 (0%)	2 (4%)	0 (0%)	.671
	Relatively satisfied	13 (26%)	15 (30%)	3 (6%)	
	Satisfied	8 (16%)	8 (16%)	1 (2%)	
Agreeableness	Not satisfied	2 (4%)	0 (0%)	0 (0%)	.657
	Relatively satisfied	23 (46%)	6 (12%)	2 (4%)	
	Satisfied	10 (20%)	6 (12%)	1 (2%)	
Conscientiousness	Not satisfied	1 (2%)	1 (2%)	0 (0%)	.945
	Relatively satisfied	9 (18%)	15 (30%)	7 (14%)	
	Satisfied	5 (10%)	8 (16%)	4 (8%)	

* Significant at $P < .05$.

TABLE 9. Correlations Between Personality and Satisfaction Scores in the Study Sample

Personality Domain	Total Satisfaction	Satisfaction/ Appearance	Satisfaction/ Pain	Satisfaction/ Comfort	Satisfaction/ General Performance
Neuroticism	$R^2 = -0.367$	$R^2 = 0.005$	$R^2 = -0.195$	$R^2 = -0.138$	$R^2 = 0.045$
	$P = .009$**	$P = .971$	$P = .174$	$P = .341$	$P = .756$
Extroversion	$R^2 = 0.135$	$R^2 = 0.356$	$R^2 = -0.049$	$R^2 = 0.182$	$R^2 = 0.039$
	$P = .351$	$P = .011$*	$P = .738$	$P = .207$	$P = .790$
Openness	$R^2 = -0.114$	$R^2 = -0.172$	$R^2 = 0.045$	$R^2 = -0.137$	$R^2 = -0.167$
	$P = .431$	$P = .234$	$P = .758$	$P = .343$	$P = .248$
Agreeableness	$R^2 = 0.163$	$R^2 = 0.115$	$R^2 = -0.036$	$R^2 = 0.215$	$R^2 = 0.080$
	$P = .258$	$P = .428$	$P = .803$	$P = .134$	$P = .579$
Conscientiousness	$R^2 = 0.062$	$R^2 = 0.214$	$R^2 = -0.160$	$R^2 = 0.306$	$R^2 = 0.088$
	$P = .668$	$P = .135$	$P = .268$	$P = .031$*	$P = .543$

* Significant at $P < .05$, ** significant at $P < .01$.

nificant differences were detected in satisfaction scores between males and females and between younger and older age groups. Two females (4%) and none of the males were totally dissatisfied with their appearance after treatment. Both sexes were comparable in their satisfaction with pain, comfort, and general performance dimensions. The older age group showed more dissatisfaction with respect to the pain (4%) and general performance (16%) dimensions, whereas the younger age group showed more dissatisfaction with respect to comfort. The differences between the two age groups were not significant.

Borderline and high treatment need and extraction/nonextraction groups were comparable in their satisfaction with appearance, pain, general performance, and eating and chewing. However, none of the high treatment need subjects nor those treated with extraction showed dissatisfaction with the comfort dimension compared with 8% dissatisfaction in each of the borderline treatment need subjects and those treated nonextraction ($P = .052$ and .048, respectively).

Personality traits demonstrated no relationship with satisfaction after orthodontic treatment except for neuroticism (Table 8). Sixty-six percent of the dissatisfied and the relatively satisfied subjects had average or high neuroticism scores ($P = .021$), and none of them demonstrated a low neuroticism score. Pearson's correlation coefficient revealed a negative correlation between neuroticism and total satisfaction ($R^2 = -0.367$, $P < .01$). Extroversion was found to be positively correlated with satisfaction with appearance ($R^2 = 0.356$, $P = .011$). Consciousness was found to be positively correlated with oral comfort ($R^2 = 0.306$, $P = .031$) (Table 9).

Total satisfaction was highly correlated with satisfaction with comfort ($R^2 = 0.46$, $P = .001$), satisfaction with general performance ($R^2 = 0.441$, $P = .001$), satisfaction with eating and chewing ($R^2 = 361$, $P = .01$), and satisfaction with pain ($R^2 = 0.34$, $P = .016$). Satisfaction with appearance ($R^2 = 0.257$, $P = .071$) was not significantly correlated with total satisfaction (Table 10).

DISCUSSION

There was a 2:3 male to female ratio for the sample of treated patients chosen from those who were re-

TABLE 10. Correlation Between the Total Satisfaction and Satisfaction Dimensions

	Satisfaction/ Appearance	Satisfaction/ Pain	Satisfaction/ Comfort	Satisfaction/ General Performance	Satisfaction/ Eating and Chewing
Total satisfaction	$R^2 = 0.257$ $P = .071$	$R^2 = 0.340$ $P = .016$*	$R^2 = 0.460$** $P = .001$***	$R^2 = 0.441$ $P = .001$***	$R^2 = 0.361$ $P = .010$**

* Significant at $P < .05$, ** significant at $P < .01$, *** significant at $P < .001$.

ferred to the department. This finding reflects the fact that females are more concerned with their esthetics, so they demonstrated better attendance to have their dentition maintained and checked and thus were more represented in the sample.

Assessment of patient satisfaction with their dentition after orthodontic treatment was carried out using the DIDL questionnaire. The DIDL is a reliable, valid, and comprehensive test for measurement of patient satisfaction and the effect of dental disease on patient daily living.[2,16,17] The test has shown the ability to assess satisfaction with different aspects of the oral cavity and dental status. Because the DIDL was the only measure of oral health effect, which was tested on Jordanian subjects,[24] it was used in this study.

Thirty-four percent of subjects in this study were completely satisfied with their teeth after orthodontic treatment, and only 4% reported complete dissatisfaction. Larsson and Bergsröm[7] using QPP (Quality from Patient's Perspective) questionnaire reported that 74% of subjects expressed complete satisfaction with the quality of orthodontic treatment. In their study, 29% of subjects evaluated were dissatisfied or partially satisfied. The use of different questionnaires to assess satisfaction after orthodontic treatment in previous studies makes comparison with other studies more difficult.

The presence of certain levels of dissatisfaction with the dentition after orthodontic treatment might be because of patient compliance or unrealistic expectations.[13] Phillips et al[25] found that males have different expectations of orthodontic treatment than females. However, this difference in expectations was not translated to a significant difference in patient satisfaction in this study. Also, there is a possibility that although dissatisfaction at the end of treatment is apparent, these individuals may be considerably less dissatisfied than they were at the beginning of treatment. This cannot be known from the collected data, and an evaluation of patient satisfaction should have been performed before orthodontic treatment for these subjects. Orthodontically treated patients demonstrated high levels of satisfaction with their teeth in general. This might be justified by the fact that orthodontic treatment could affect dental performance positively, which could lead to higher levels of satisfaction. This finding coincides with the results of previous studies that revealed higher levels of satisfaction with the dentition after orthodontic treatment.[26–30]

In this study sex showed no association with any dimension of dental satisfaction. This was in agreement with those reports that sex has no effect on patient satisfaction[7,31] and is contrary to other studies, which suggested that females are more dissatisfied with appearance of their dentition than males.[5,8] However, in this study, dissatisfaction with appearance was expressed by females only. This might be explained by the fact that females are more concerned about their appearance[9] and they perceive more need for treatment than males.[8,9,11] Satisfaction with the pain dimension was comparable between both sexes. This was in agreement with studies reporting no sex differences in pain threshold[32,33] and is contrary to those reports that females have a lower pain threshold than males.[10,34]

Satisfaction with the dentition after orthodontic treatment showed no relationship with age. This was contrary to other studies reporting that satisfaction decreases with age.[5–7,9,31] Although not statistically significant, the older age group showed more dissatisfaction related to pain and general performance dimensions, whereas the younger age group showed less satisfaction because of the comfort dimension. This could be explained by findings of others who reported that the pain threshold lowers with age[34,35] and that older subjects express more concern about general dental health[25] than do the younger age groups. On the other hand, Ngan et al[32] reported a similar pain threshold for those below 16 years and those above 16 years. Younger subjects showed less satisfaction with the comfort dimension and that is related to periodontal health status. This may be because of hormonal changes that occur during pubertal growth.[36]

Pretreatment orthodontic treatment need for treatment and the extraction decision were not correlated with satisfaction. Borderline treatment need and high treatment need subjects and extraction and nonextraction subjects perceived the results of orthodontic treatment similarly. However, borderline treatment need and nonextraction treatment subjects expressed more dissatisfaction with the comfort dimension, which included the gingival status. This may be explained by the fact that borderline treatment need and nonextraction treatment cases had mild malocclusion and were

mainly externally motivated by the parents. This might result in the milder malocclusion patients neglecting their oral hygiene with resulting gingival inflammation.

In this study, dissatisfied subjects scored average or high on neuroticism. The finding that neuroticism was associated with dental satisfaction was in agreement with reports by others.[15,37] Kiyak et al[15] reported that persons who scored higher on the neuroticism scale are less likely to be satisfied immediately after surgery but express increased satisfaction later.

In this study, although improving dental appearance was the patient's main concern, satisfaction with the appearance dimension was not correlated with total satisfaction. This was contrary to that reported by Berscheid et al[4] who suggested that people who are dissatisfied with their facial appearance express more dissatisfaction with their teeth than any other facial feature. However, it was satisfaction with other aspects of the dentition such as comfort, general performance, eating and chewing, and pain dimension that contributed to the total satisfaction scores.

The results of this study emphasize the importance of considering psychological assessment for patients undergoing orthodontic treatment. Patients with a neurotic personality should be treated with greater care and provided with greater psychological support throughout orthodontic treatment.

CONCLUSIONS

- Personality and satisfaction were correlated, and each had its effect on the other.
- Orthodontically treated patients with high neuroticism scores were associated with lower levels of satisfaction with the dentition.
- Satisfaction with oral comfort, general performance, eating capacities, and pain dimensions during orthodontic treatment had definitive effects on total satisfaction.
- Orthodontic patients treated as nonextraction expressed dissatisfaction in the oral comfort dimension.

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APPENDIX 1

Dental Impact on Daily Living questionnaire items

Name: _____ Age: _____ Sex: _____

Please show your response to the following statements by encircling:

Positive {If you agree with the statement}, Negative {If you do not agree with the statement}, or Neutral {If you are not sure or do not know}.

Please feel free to inquire about any statement if you feel any difficulty understanding it.

1. I am satisfied with my teeth in general.	Positive,	Neutral, Negative
2. I am satisfied with the appearance of my teeth.	Positive,	Neutral, Negative
3. I am satisfied with the colour of my teeth.	Positive,	Neutral, Negative
4. I am satisfied with the position of my teeth.	Positive,	Neutral, Negative
5. I feel spontaneous pain in my teeth.	Positive,	Neutral, Negative
6. I feel dental pain when eating or drinking hot or cold.	Positive,	Neutral, Negative
7. I changed my food because of pain.	Positive,	Neutral, Negative
8. I feel pain in my jaw joint.	Positive,	Neutral, Negative
9. I have worries with my teeth.	Positive,	Neutral, Negative
10. I suffer from food packing between my teeth.	Positive,	Neutral, Negative
11. I have halitosis and bad smelling breath.	Positive,	Neutral, Negative
12. I have loose teeth.	Positive,	Neutral, Negative
13. I am not satisfied with my gums.	Positive,	Neutral, Negative
14. I have bleeding gums.	Positive,	Neutral, Negative
15. I have sensitivity to hot or cold due to gum recession.	Positive,	Neutral, Negative
16. My work capacities are affected by the appearance of my teeth.	Positive,	Neutral, Negative
17. My work capacities are affected by my ability to eat and talk.	Positive,	Neutral, Negative
18. My contact with people is affected by the appearance of my teeth.	Positive,	Neutral, Negative
19. My contact with people is affected by my ability to eat and talk.	Positive,	Neutral, Negative
20. My contact with people is affected by dental pain.	Positive,	Neutral, Negative
21. My romance is affected by dental pain.	Positive,	Neutral, Negative
22. My romance is affected by my ability to eat and talk.	Positive,	Neutral, Negative
23. My self-confidence is affected by appearance of my teeth.	Positive,	Neutral, Negative
24. I feel embarrassment because of my teeth.	Positive,	Neutral, Negative
25. My romance is affected by the appearance of my teeth.	Positive,	Neutral, Negative
26. I try to avoid showing my teeth when I smile.	Positive,	Neutral, Negative
27. I am not satisfied with my smile.	Positive,	Neutral, Negative

28. My work capacity is affected by pain.	Positive,	Neutral,	Negative
29. I feel stress because of pain.	Positive,	Neutral,	Negative
30. I sleep badly because of pain.	Positive,	Neutral,	Negative
31. I am satisfied with the capacity to chew.	Positive,	Neutral,	Negative
32. I am satisfied with chewing in general.	Positive,	Neutral,	Negative
33. I am satisfied with the capacity to bite.	Positive,	Neutral,	Negative
34. I am satisfied with biting in general.	Positive,	Neutral,	Negative
35. I did not change the way of food preparation because of teeth.	Positive,	Neutral,	Negative
36. I did not change the type of food because of teeth.	Positive,	Neutral,	Negative

If you would like to comment on anything about your satisfaction with your dentition, please comment here:

APPENDIX 2

NEO Five Factor Inventory (NEO-FFI) for assessment of personality profiles

1. I am not a worrier.
2. I like to have a lot of people around me.
3. I don't like to waste my time daydreaming.
4. I try to be courteous to everyone I meet.
5. I keep my belongings neat and clean.
6. I often feel inferior to others.
7. I laugh easily.
8. Once I find the right way to do something, I stick to it.
9. I often get into arguments with my family and co-workers.
10. I'm pretty good about pacing myself so as to get things done on time.
11. When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.
12. I don't consider myself especially ''light hearted''.
13. I am intrigued by the patterns I find in art and nature.
14. Some people think I'm selfish and egotistical.
15. I am not a very methodical person.
16. I rarely feel lonely or blue.
17. I really enjoy talking to people.
18. I believe letting students hear controversial speakers can only confuse and mislead them.
19. I would rather cooperate with others than compete with them.
20. I try to perform all the tasks assigned to me conscientiously.
21. I often feel tense and jittery.
22. I like to be where the action is.
23. Poetry has little or no effect on me.
24. I tend to be cynical and skeptical of others' intentions.
25. I have a clear set of goals and work toward them in an orderly fashion.
26. Sometimes I feel completely worthless.
27. I usually prefer to do things alone.
28. I often try new and foreign foods.
29. I believe that most people will take advantage of you if you let them.
30. I waste a lot of time before settling down to work.
31. I rarely feel fearful or anxious.
32. I often feel as if I'm bursting with energy.
33. I seldom notice the moods or feelings that different environments produce.
34. Most people I know like me.
35. I work hard to accomplish my goals.
36. I often get angry at the way people treat me.
37. I am a cheerful, high-spirited person.
38. I believe we should look to our religious authorities for decisions on moral issues.
39. Some people think of me as cold and calculating.
40. When I make a comment, I can always be counted on to follow through.
41. Too often when things go wrong, I get discouraged and feel like giving up.
42. I am not a cheerful optimist.
43. Sometimes when I am reading poetry or looking at a work of art, I feel a chill or wave of excitement.
44. I'm hard-headed and tough-minded in my attitudes.
45. Sometimes I'm not as dependable or reliable as I should be.
46. I am seldom sad or depressed.
47. My life is fast-paced.
48. I have little interest in speculating on the nature of the universe or the human condition.
49. I generally try to be thoughtful and considerate.

50. I am a productive person who always gets the job done.
51. I often feel helpless and want someone else to solve my problems.
52. I am a very active person.
53. I have a lot of intellectual curiosity.
54. If I don't like people, I let them know it.
55. I never seem to be able to get organized.
56. At times I have been so ashamed I just wanted to hide.
57. I would rather go my own way than be a leader of others.
58. I often enjoy playing with theories or abstract ideas.
59. If necessary, I am willing to manipulate people to get what I want.
60. I strive for excellence in everything I do.

*SD= Strongly Disagree, D= Disagree, N= Neutral, A= Agree, SA= Strongly Agree

1	SD	D	N	A	SA	**2**	SD	D	N	A	SA	**3**	SD	D	N	A	SA	**4**	SD	D	N	A	SA	**5**	SD	D	N	A	SA
6	SD	D	N	A	SA	**7**	SD	D	N	A	SA	**8**	SD	D	N	A	SA	**9**	SD	D	N	A	SA	**10**	SD	D	N	A	SA
11	SD	D	N	A	SA	**12**	SD	D	N	A	SA	**13**	SD	D	N	A	SA	**14**	SD	D	N	A	SA	**15**	SD	D	N	A	SA
16	SD	D	N	A	SA	**17**	SD	D	N	A	SA	**18**	SD	D	N	A	SA	**19**	SD	D	N	A	SA	**20**	SD	D	N	A	SA
21	SD	D	N	A	SA	**22**	SD	D	N	A	SA	**23**	SD	D	N	A	SA	**24**	SD	D	N	A	SA	**25**	SD	D	N	A	SA
26	SD	D	N	A	SA	**27**	SD	D	N	A	SA	**28**	SD	D	N	A	SA	**29**	SD	D	N	A	SA	**30**	SD	D	N	A	SA
31	SD	D	N	A	SA	**32**	SD	D	N	A	SA	**33**	SD	D	N	A	SA	**34**	SD	D	N	A	SA	**35**	SD	D	N	A	SA
36	SD	D	N	A	SA	**37**	SD	D	N	A	SA	**38**	SD	D	N	A	SA	**39**	SD	D	N	A	SA	**40**	SD	D	N	A	SA
41	SD	D	N	A	SA	**42**	SD	D	N	A	SA	**43**	SD	D	N	A	SA	**44**	SD	D	N	A	SA	**45**	SD	D	N	A	SA
46	SD	D	N	A	SA	**47**	SD	D	N	A	SA	**48**	SD	D	N	A	SA	**49**	SD	D	N	A	SA	**50**	SD	D	N	A	SA
51	SD	D	N	A	SA	**52**	SD	D	N	A	SA	**53**	SD	D	N	A	SA	**54**	SD	D	N	A	SA	**55**	SD	D	N	A	SA
56	SD	D	N	A	SA	**57**	SD	D	N	A	SA	**58**	SD	D	N	A	SA	**59**	SD	D	N	A	SA	**60**	SD	D	N	A	SA