the Journal of CONTEMPORARY DENTAL PRACTICE at www.thejcdp.com
Volume 9 Number 1 January 1, 2008

Instability of Self-esteem and Affective Lability as Determinants of Self-reported Oral Health Status and Oral Health-related Behaviors

Alexandrina L. Dumitrescu, BDS, PhD; Beatrice C. Dogaru, MD; Cristian D. Dogaru, MD

Abstract

Aim: The aim of the study was to examine the impact of the instability of self-esteem and affective lability on students' self-rated oral health and oral health-related behaviors.

Methods and Material: The present study sample consisted of 178 first year medical students. A questionnaire was used to collect information about socio-demographic factors, behavioral factors, self-reported oral health status, the instability of self-esteem, and affective lability.

Results: Significant differences were found on the instability of self-esteem and affective lability on the following variables: gender, smoking, anxiety, depression, stress in everyday life, number of extracted teeth, and satisfaction with appearance of one's own teeth (*Ps*<0.05). The level of instability of self-esteem had a consistent association with the self-reported oral health status and satisfaction with appearance of teeth. The affective lability total score was a determinant of the number of extracted teeth, last toothache, self-rated gingival status, while anger was correlated with the number of current non-treated caries, extracted teeth, toothbrushing, and flossing frequency.

Conclusions: The results indicate there is an increased risk for impaired dental health among subjects with instable self-esteem symptoms or symptoms of anger.

Keywords: Instability of self-esteem, affective lability, anger, oral health behavior, oral health status

Citation: Dumitrescu AL, Dogaru CB, Dogaru CD. Instability of Self-esteem and Affective Lability as Determinants of Self-reported Oral Health Status and Oral Health-related Behaviors. J Contemp Dent Pract 2008 January; (9)1:038-045.

Introduction

One of the primary goals of dental health professionals is to prevent disease in patients. Health promotion can be defined as the process which enables people to gain control over their health determinants in order to improve their health and enabling them to live an active and productive life.[1] This definition contains three important components. First, it includes the recognition of the determinants (biological factors) of health (endogenous determinants); the physical and social environment and lifestyle (exogenous determinants) as well as the system of healthcare. Second, it sets an objective of leading an active productive life. Third, it refers to the activity or the enabling process in which the determinants of health are used to reach the objective in a dialectic relationship between people, the setting, and the enablers. At the heart of the process is the respect for people as active participating subjects.[1]

Previous studies have shown oral health behaviors are associated with various psychological traits including self-esteem, self-efficacy, life satisfaction, optimism, sense of coherence, anxiety, depression, locus of control, stress, and cynical hostility.[2] The theory of self-esteem is well-known and has been used in health behavior studies for a long time. Self-esteem is described by Rosenberg,[3] who postulates individuals with high self-esteem respect themselves, considers themselves to be at least on an equal plane with others, recognizes their own limitations, and expects to grow and improve. Research has linked high self-esteem to many positive outcomes including occupational success, healthy social relationships, subjective well-being, positive perceptions by peers, academic achievement, persistence in the face of failure, and improved coping and self-regulation skills.[4] In the dental sphere higher self-esteem has been associated with a greater frequency of toothbrushing.[5-8] By contrast, the role of self-esteem on dental visits is less clear with some[5] but not all studies find an association with dental appointment compliance.[8-9] Conversely, low self-esteem has been linked to a number of problematic outcomes including depressive symptoms, health problems, and antisocial behavior.[4]

Affective lability is a rapid change of the emotional expression in which a person responds to environmental and internal stimuli in an unpredictable, hyper-responsive fashion. Affective lability can be characterized as unpredictable shifts in intensity or frequency of a patient's baseline emotional expressivity. Affective lability has also been described as an emotional expression in excess of cultural norms with repeated, rapid, and abrupt emotional shifts. Affective lability has been associated with a variety of medical disorders including hyperthyroidism, epilepsy, diabetes, and steroid related syndromes.[10] Several studies have found significant relationships between affective lability and areas of emotional and behavioral problems including late-life suicide, substance-use related problems,[11] impulsive-aggressive behavior, borderline personality disorder, and bipolar disorder.[12-14]

Since there is a lack of information about this area available in the literature, the aim of the present study was to examine the impact of instability of self-esteem and affective lability on students' self-rated oral health and oral health-related behaviors.

Methods and Material

Sample

A total of 178 first year medical students at the School of Dental Medicine, University of Medicine and Pharmacy "Carol Davila", Bucharest, Romania, were invited to participate in this study at the beginning of the academic year. The subjects of the study were 72.5% females; mean (SD) age of the participants = 19.1 (1.6). All students selected for the study completed a set of questionnaires. Prior to participation, subjects conveyed informed consent to participate in the study.

Measures

A purpose-designed, self-reporting questionnaire was used in the present study and addressed the following: (Figure 1)

1. Socio-demographic factors (age, gender, and smoking)
2. Perceived oral health status (dental health, non-treated caries, satisfaction with appearance of own teeth, dental pain, gingival condition, and gum bleeding)
3. Oral health habits (toothbrushing, flossing, mouthrinse frequency, dental visiting, and reasons for the dental visit)[15-17]

Subjects were classified as smokers, past-smokers, and non-smokers. The questionnaire also contained three questions assessing anxiety, stress, and depression, namely "do you feel anxious (stressed, depressed) in your everyday life" with the response alternatives being: (1) 'no, never', (2) 'yes, sometimes' and (3) 'yes, often.'[18]

Instability of Self-esteem

Instability of self-esteem was evaluated with the Instability of Self-Esteem Scale (ISES) which is a four-item scale.[19] The four items are worded in the same format. The specific wording of the items is organized through the balance of opposed thoughts or feelings about self-worth (e.g., "Sometimes I feel worthless; at other times I feel that I am worthwhile"). Participants indicated their agreement with items on a 5-point Likert scale from 0 (strongly disagree) to 4 (strongly agree).

Affect Lability

Affect lability was measured with the 18 item short form of the Affective Lability Scale (ALS-SF).[20] Items are rated on a four point anchored rating scale ranging from being (1) very undescriptive to (4) very descriptive of the participating person. The ALS-SF is comprised of three correlated conceptual scales: depression/anxiety (D/A), anger (A), and biphasic affect (depression/elation) (D/E). The scales were translated into Romanian by two bilingual psychologists using back translation methods. In the present study, the internal consistencies of the ALS-SF and ISES were determined to be favorable (Cronbach's alpha = 0.898 and respectively 0.815). The scales were correlated: r's ranged from 0.20 (depression/elation-ISES) to 0.90 (anxiety-ALS-SF).

Statistical Analysis

Descriptive statistics and statistical analyses were performed with SPSS computerized statistical software (SPSS 13.0, Inc., Chicago, IL, USA). The internal consistency of the ISES and ALS-SF was examined using Cronbach's α. Descriptive statistics were used on all variables. The difference among three groups was examined with the Kruskal-Wallis test with a post-test and with Mann–Whitney U-test between the two groups as appropriate. Multiple linear regression analyses were performed utilizing age, sex, smoking, instability of self-esteem, affective lability, and its subscales: depression/anxiety, depression/elation, and anger as independent variables in the study group. All reported *P*-values are two-tailed; moreover, *P*-values less than 0.05 were considered statistically significant.

Results

Descriptive Data and Group Differences

On the whole, the questions were answered very conscientiously. No more than 0.5-3% of the questionnaires had missing answers resulting in excellent completion rates for each of the subscales. Women scored significantly higher than men on stress ($p< 0.05$) and instability of self-esteem: 7.92±3.86 vs. 6.33±4.14, $P<0.05$ but no differences were observed according to gender on ALS-SF scores (35.04±9.67 vs. 34.01±10.52). Significant differences were also noted between genders with regard to toothbrushing, flossing,

Figure 1. Self-assessment questionnaire.

Age: _____ **Gender:** Male ____ Female ____

Are you a:
Non-smoker? ____ Smoker? ____ Past-smoker? ____

Perceived dental health
Excellent ____ Very good ____Good ____ Normal ____ Poor/very poor ____

In your opinion, do you have caries in your teeth at the moment? Yes ___ No ___

Are you satisfied by appearance of your teeth? Yes ___ No ___

Have you had teeth extracted other than third molars? Yes ___ No ___

When did you last experience a toothache?
Last week. ____ During the last 3 months. ____ During the last year. ____
More than a year ago. ____ Do not remember. ____

How would you evaluate your gingival condition?
Excellent ____ Very good ____ Good ____ Normal ____ Poor/very poor ____

Do you personally experience one or more of the problems or conditions listed below?''
Bleeding gums when brushing the teeth. ____ Spontaneous bleeding from the gums. ____
Pain from the gums. ____ Change in colour of the gums. ____
Swollen gums. ____ Recession of the gums. ____ Tooth mobility. ____

How often do you brush your teeth?
More than twice a day. ____ Twice a day. ____ Once a day. ____
Less than once a day. ____ Never. ____

How often do you floss your teeth?
Everyday. ____ More than once a week. ____ Once a week. ____
Once a month. ____ Never. ____

How often do you use mouthrinse?
Everyday. ____ More than once a week. ____ Once a week. ____
Once a month. ____ Never. ____

Indicate the time since your last dental visit:
Last month. ____ Less than 6 months ago. ____ 6-12 months ago. ____
1-2 years ago. ____ More than 2 years ago. ____

Indicate the reasons for your last dental visit:
For a check-up. ____ For a tooth cleaning and scaling. ____
Treatment was needed. ____ When in pain. ____ Never. ____

Do you feel anxious in your daily life?
No, never ____ Yes, sometimes ____ Yes, often ____

Did you feel stressed in last month?
No, never ____ Yes, sometimes ____ Yes, often ____

Do you fell depressed in your daily life?
No, never ____ Yes, sometimes ____ Yes, often ____

and last dental visit frequency ($P<0.05$). The results revealed 98.31% of the students felt their dental health was "normal to excellent" despite the fact 42.85% of them reported current non-treated caries, 18.28% presented extracted permanent teeth, and 38.58% also experienced a toothache during the last year. Only 2.24% of the students felt their gingival condition was poor/very poor despite the fact 52.80% of them reported to have gum bleeding. The finding revealed 85.39% of the students brushed more than twice a day. Other oral hygiene aids like dental floss (15.16%) and mouthrinse (25.28%) were reportedly used more than once a week. The data indicates 84.27% of students were regular users of the dental-care system (i.e., they had at least one dental visit in the last two years) and 24.71% had seen the dentist in the previous month.

Association of Instability of Self-esteem and Affective Lability on Self-rated Oral Health Status and Health Behaviors

Significant differences were found regarding the instability of self-esteem and affective lability according to several variables: gender, smoking, anxiety, depression, stress in everyday life (Figure 2), number of extracted teeth, and satisfaction with the appearance of their own teeth ($Ps<0.05$) (Table 1).

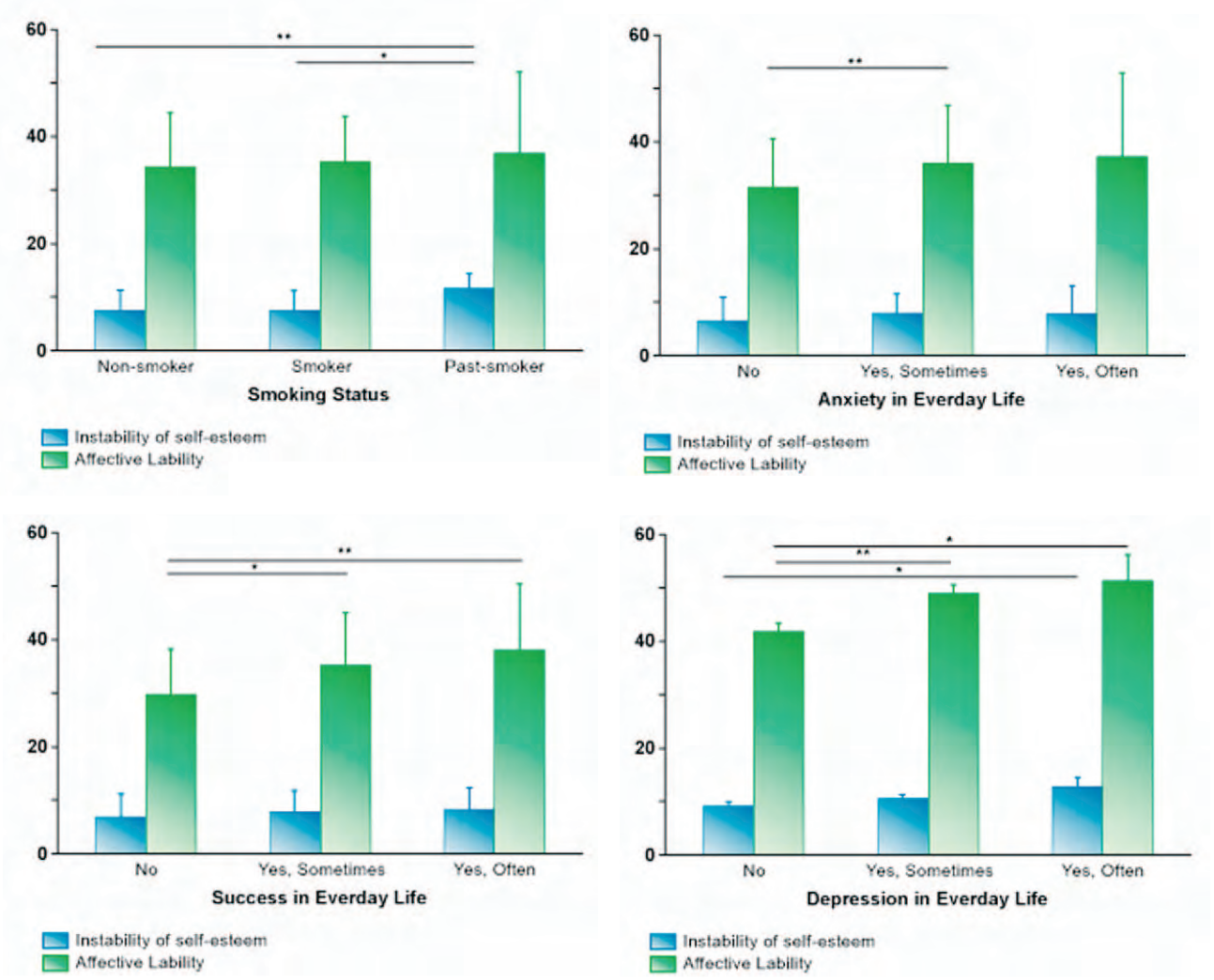


Figure 2. Comparison of Instability of self-esteem (ISES) and Affective Lability (ALS-SF) scales according to several variables. (* $P<0.05$; ** $P<0.01$; *** $P<0.001$)

Table 1. Comparison of Instability of self-esteem (ISES) and Affective Lability (ALS-SF) scales and subscales (Mean ± S.D.) according to self-reported oral-health status.

	ISES	ALS-SF	ALS: A/D	ALS: D/E	ALS: A
Perceived dental health					
Excellent (2.25)	3.50±4.12	29.00±12.51	7.00±2.45	12.50±5.44	9.50±5.00
Very good (16.29)	6.89±3.77	31.62±8.35	8.52±2.93	15.06±3.80	8.17±2.80
Good (44.94)	7.20±4.12	34.42±10.73	9.75±3.51	16.43±4.91	8.93±2.87
Normal (34.27)	8.26±3.79	35.77±10.66	9.93±3.26	16.45±5.30	9.67±3.42
Poor/very poor (1.68)	8.00±3.46	32.33±3.78	9.00±3.00	15.67±1.53	7.67±1.53
P value	*NS*	*NS*	*NS*	*NS*	*NS*
Current non-treated caries					
Yes (43.82)	7.87±4.05	34.02±9.54	9.43±3.16	16.10±5.05	8.53±2.89
No (82.02)	7.19±3.97	34.57±10.98	9.63±3.45	16.19±4.60	9.47±3.21
P value	*NS*	*NS*	*NS*	*NS*	*P<0.05*
Current extracted teeth					
Yes (17.98)	7.22±3.65	38.15±7.98	10.81±2.95	17.62±4.30	9.90±2.63
No (82.02)	7.55±4.10	33.49±10.64	9.27±3.35	15.83±4.98	8.88±3.17
P value	*NS*	*P<0.01*	*P<0.05*	*P<0.05*	*P<0.05*
Satisfaction by appearance of own teeth					
Yes (52.25)	6.79±0.39	33.19±1.08	9.41±3.43	15.81±4.67	8.62±2.91
No (47.19)	8.24±0.45	35.54±1.12	9.70±3.23	16.50±5.17	9.53±3.26
P value	*P<0.05*	*NS*	*NS*	*NS*	*P=0.056*
Toothache last time					
Do not remember (43.26)	7.49±3.94	32.04±8.80	9.00±3.05	14.98±4.26	8.41±2.70
More than a year ago (17.97)	7.19±4.36	36.12±11.13	10.37±3.35	16.03±4.78	9.81±3.02
During last year (12.36)	8.13±4.24	34.77±13.36	9.61±3.18	17.14±5.25	9.67±3.67
During last 3 months (17.97)	7.09±3.97	34.12±10.61	9.30±3.50	15.84±5.20	9.13±3.31
Last week (7.30)	8.15±3.62	38.46±11.93	11.30±4.02	17.60±5.89	9.83±3.59
P value	*NS*	*NS*	*NS*	*P<0.05*	*NS*
Very good (27.52)	7.26±0.48	33.30±9.62	9.18±3.33	15.48±4.65	8.83±3.12
Good (34.27)	7.49±0.54	34.64±10.20	9.72±3.28	16.39±4.89	8.89±3.21
Normal (28.65)	7.92±0.60	35.41±11.73	9.87±3.45	16.68±5.26	9.63±3.19
Poor/very poor (2.24)	8.25±1.65	39.50±8.54	12.27±2.22	18.00±5.47	9.75±1.89
P value	*NS*	*NS*	*NS*	*NS*	*NS*
Self-reported gum bleeding					
No signs (28.65)	7.47±0.57	32.47±1.49	9.14±3.12	15.63±4.74	8.76±2.61
Yes (52.81)	7.63±0.44	34.76±1.02	9.62±3.41	16.31±4.91	8.99±3.06
P value					

Parentheses indicate the percentage (%).
NS: Not significant.

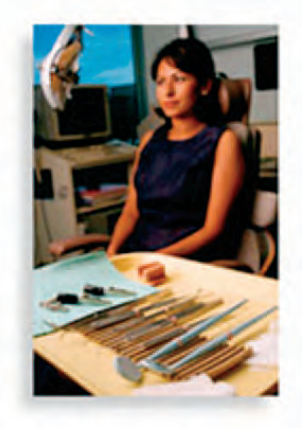
The results showed the mean levels of instability of self-esteem in individuals with poor to very poor perceived dental and gingival condition were higher than, but not statistically different from, those of individuals with self-rated excellent dental and gingival health. Affective lability in participants with existing extracted teeth and with dental pain during the previous week was higher compared to complete dentate students ($P<0.01$) and those without any dental pain in the past ($P<0.05$).

In order to assess the relationship between instability of self-esteem, affective lability, and oral health-related behaviors several outcome variables such as toothbrushing, flossing, frequency of mouthrinse use, and the pattern of dental visits were used (Table 2). Students' affective lability was associated with toothbrushing and frequency of mouthrinse use. Adolescents with higher affective lability, anger, and depression/elation scores were more likely to brush their teeth once or less per day.

The multiple linear regression analyses showed, for both toothbrushing and flossing as dependent variable, a strong association with affective lability dimensions: anxiety/elation and anger (Table 3). The models were well fitted to the data (R^2=8.94%, F=3.336, P=0.0067 and, respectively, for flossing R^2=7.01%, F=2.549, P=0.029). The frequency of mouthrinse use and the dental visit pattern were not influenced by the instability of self esteem and affective lability significantly ($P>0.05$).

Discussion

To our knowledge, this investigation is the first to examine the influence of instability of self-esteem and affective lability on self-reported oral health status and behavior. The results demonstrated the level of instability of self-esteem had a consistent association between both self-reported oral health status and satisfaction with the appearance of teeth, whereas affective lability was a determinant of the number of recently extracted teeth, last dental pain, and self-rated gingival status. In turn, anger was correlated with the number of current non-treated caries, extracted teeth, toothbrushing, and frequency of mouthrinse use.



In the current study students reporting higher levels of instability of self-esteem were less likely to perceive their oral and gingival health as good and were more likely to present with anxiety, depression, and stress in everyday life. It has been argued, (a) among individuals with high self esteem, self-esteem instability is associated primarily with a heightened concern about achieving and maintaining a more stable and secure positive self-view, but (b), among individuals with low self-esteem, self-esteem instability is associated primarily with a heightened concern about avoiding a continuous negative self-view.[21] It is well known subjects with a high level of general anxiety in particular tend to be pessimistic and in the cognitive area tend to misjudge the state of their dental health.

The present study revealed negative emotions; in particular, affective instability, anger, and depression/elation had a deleterious influence on the toothbrushing and frequency of mouthrinse use. According to previous studies, oral health behaviors are associated with various psychological traits including self-esteem,[6] self-efficacy,[22] life satisfaction, optimism,[23] sense of coherence,[24-25] anxiety,[26] depression,[26,27] locus of control,[2,28,29] stress,[30] and cynical hostility.[31]

Anger refers to feelings of being treated unjustly and is accompanied by subjective arousal. In both clinical and non-clinical settings excessive anger and dysfunctional anger expression have been linked to aggressive behavior, reduced social support, occupational stress and burnout, substance abuse, anxiety and depression, and a variety of physical and mental health problems: cardiovascular disease, osteoporosis,

Table 2. Comparison of Instability of self-esteem (ISES) and Affective Lability (ALS-SF) scales and subscales (Mean ± S.D.) according to self-reported oral-health habits.

	ISES	ALS-SF	ALS: A/D	ALS: D/E	ALS: A
Daily toothbrushing frequency					
More than twice a day (25.28)	7.71±3.87	34.74±9.27	9.52±3.33	16.5±4.43	8.79±2.88
Twice a day (59.55)	7.80±4.12	32.67±10.20	9.23±3.26	15.44±4.81	8.68±2.94
Once a day or less (14.61)	5.88±3.54	40.38±10.79	10.88±3.33	18.42±5.46	11.07±3.45
P value	*NS*	*P<0.01*	*NS*	*P<0.05*	*P<0.01*
Flossing frequency					
Everyday (5.05)	6.89±4.40	31.44±6.87	8.88±3.05	14.88±2.64	7.66±2.06
More than once a week (10.11)	8.16±3.85	35.00±10.79	9.88±3.75	16.27±5.43	8.83±2.89
Once a week (10.11)	7.61±3.27	37.33±7.41	11.16±2.87	17.38±4.69	8.98±2.03
Once a month (8.98)	7.12±3.03	34.87±8.85	9.94±3.32	15.68±4.81	9.48±2.63
Never (65.17)	7.52±4.26	34.21±10.66	9.24±3.32	16.10±5.04	9.15±3.40
P value	*NS*	*NS*	*NS*	*NS*	*NS*
Mouthrinse frequency					
Everyday (15.73)	8.36±3.66	31.89±7.88	8.71±2.81	15.11±3.53	8.20±2.91
More than once a week (9.55)	8.12±4.03	40.00±12.00	11.23±3.83	18.41±5.44	10.35±3.75
Once a week (10.11)	6.61±3.09	39.61±6.82	10.33±1.74	19.05±4.11	10.32±2.56
Once a month (8.42)	5.33±3.43	35.53±10.22	9.60±2.39	16.00±6.22	10.06±3.34
Never (55.61)	7.63±4.26	33.12±10.54	9.34±3.63	15.55±4.83	8.93±3.03
P value	*NS*	*P<0.01*	*NS*	*P<0.01*	*P<0.05*
Last dental visit					
Less than 6 months ago (46.62)	7.48±3.91	34.66±11.57	9.58±3.50	16.51±5.05	9.37±3.40
6-12 months ago (21.91)	7.43±3.41	33.33±7.63	9.74±2.94	15.41±3.99	8.43±2.39
1-2 years ago (15.73)	7.46±4.83	32.96±8.38	9.17±2.56	15.10±4.81	8.67±2.49
More than 2 years ago (14.61)	7.62±4.48	36.23±11.99	9.57±4.08	17.30±5.77	9.34±3.48
P value	*NS*	*NS*	*NS*	*NS*	*NS*
Reason for the dental visit					
For check-up or for tooth cleaning and scaling (49.44)	7.50±4.04	33.86±9.95	9.48±3.41	15.81±4.62	8.85±2.94
When treatment is needed or when pain (45.50)	7.44±4.15	34.81±10.76	9.58±3.18	16.57±5.22	9.27±3.15
P value	*NS*	*NS*	*NS*	*NS*	*NS*

Parentheses indicate the percentage (%).
NS: Not significant.

Table 3. Multiple linear regression model with oral health behaviors as dependent variable.

Variable	Predictors*	B	S.E.	t	P	CI
Toothbrushing Frequency	Gender	0.27	0.11	20.55	0.01	0.06 to 0.45
	Instability of self-esteem	0.02	0.01	10.42	0.16	-0.01 to 0.04
	Affective lability–anxiety/depression	-0.01	0.02	-0.18	0.86	-0.04 to 0.04
	Affective lability–anxiety/elation	0.01	0.01	0.30	0.77	-0.02 to 0.03
	Affective lability–anger	-0.05	0.02	-20.17	0.03	-0.09 to -0.01
Flossing Frequency	Gender	0.51	0.21	20.38	0.02	0.09 to 0.93
	Instability of self-esteem	-0.01	0.02	-0.49	0.63	-0.06 to 0.04
	Affective lability–anxiety/depression	0.08	0.04	20.12	0.03	0.01 to 0.16
	Affective lability–anxiety/elation	0.01	0.03	0.16	0.87	-0.05 to 0.06
	Affective lability–anger	-0.10	0.04	-20.36	0.02	-0.18 to -0.02
Mouthrinse Frequency	Gender	0.37	0.27	10.37	0.17	-0.16 to 0.91
	Instability of self-esteem	0.01	0.03	0.32	0.75	-0.05 to 0.07
	Affective lability–anxiety/depression	-0.02	0.05	-0.45	0.65	-0.12 to 0.08
	Affective lability–anxiety/elation	0.03	0.03	0.95	0.34	-0.03 to 0.10
	Affective lability–anger	-0.01	0.05	-0.17	0.87	-0.11 to 0.09
Last Dental Visit	Gender	0.78	0.24	30.29	0.00	0.31 to 10.25
	Instability of self-esteem	-0.02	0.03	-0.91	0.36	-0.08 to 0.029
	Affective lability–anxiety/depression	-0.01	0.04	-0.34	0.73	-0.10 to 0.071
	Affective lability–anxiety/elation	-0.01	0.03	-0.17	0.87	-0.06 to 0.054
	Affective lability–anger	0.04	0.05	0.88	0.38	-0.05 to 0.134
Pattern of Dental Visit	Gender	-0.15	0.18	-0.85	0.39	-0.51 to 0.203
	Instability of self-esteem	0.01	0.02	0.46	0.64	-0.03 to 0.050
	Affective lability–anxiety/depression	0.02	0.03	0.74	0.46	-0.04 to 0.091
	Affective lability–anxiety/elation	-0.02	0.02	-0.91	0.37	-0.06 to 0.024
	Affective lability–anger	-0.02	0.04	-0.49	0.62	-0.09 to 0.054

*Smoking status and age did not have a direct significant effect on overall oral health behavior.

arthritis, type 2 diabetes, chronic pain, and certain cancers.[22-34] The genesis of anger and its relationship with compliance to oral health behaviors are difficult to explain. Feelings of anger correlate with feelings of stress, anxiety, instability of self-esteem, affective lability, whereas the latter does not correlate with toothbrushing frequency in the present study. These findings suggest reduced oral hygiene practices are not only related to a general depressive-anxious condition but also to anger, which is consistent with the results of previous studies.[26,27] Furthermore, the findings suggest anger may not be the consequence of stress, depression, or anxiety but rather a primitive and archaic emotional reaction. Such reaction bypasses cognitive processes and may lead patients to behaviors (such as reduced oral health behaviors) that are symbolically and, in fact, self-destructive.[35]

The present study has several limitations. First, the sample is not representative of the general population with previous studies reporting socio-economic, racial, and ethnic differences in oral and gingival health.[36] Second, the sample only included first year medical students who are only 19 years old on average, well educated, relatively affluent, and who may have easier access to quality dental care. Therefore, the possibility of generalizing the findings of the present study should be tested by replicating them in other populations. All assessments were self-reported by the subjects; another obvious limitation of this study, no objective oral health outcome data was incorporated into the results.

Self-reported oral health questionnaires are used widely in epidemiological oral health investigations because they are time- and cost-effective and provide detailed information on subjects in a single health examination.[37-41] However, in the present study it is impossible to determine the extent these self-reports correspond with the participants' oral and gingival health status. Future studies could benefit from adding clinical measures of oral and periodontal health.

Conclusion

The results of this study underscore the importance of focusing on psychological determinants in attending to the perceptions of individuals of their oral health and to encourage them to adhere to positive dental health behaviors. This study showed age was of no significance in the relationship between toothbrushing, flossing, or mouthrinse frequency and instability of self-esteem, affective lability, or anger among young subjects. This supports the concept these behaviors develop before the age of 20, possibly during childhood. In order to improve oral health behavior it is important to take into account the formation of instability of self-esteem and affective lability in childhood and to try to prevent its development.

References

1. Koelen MA, Lindstrom B. Making healthy choices easy choices: the role of empowerment. Eur J Clin Nutr 2005; 59: S10-5.
2. Monteiro da Silva AM, Newman HN, Oakley DA. Psychosocial factors in inflammatory periodontal diseases. A review. J Clin Periodontol 1995; 22: 516-26.
3. Rosenberg, M. Society and the adolescent self-image. New Jersey: Princeton. 1965.
4. Trzesniewski KH, Donnellan MB, Robins RW. Stability of self-esteem across the life span. J Pers Soc Psychol 2003; 84: 205-20
5. Regis D, Macgregor IDM, Balding JW. Differential prediction of dental health behavior by self-esteem and health locus of control in young adolescents. J Clin Periodont 1994; 21: 7-12.
6. Macgregor ID, Regis D, Balding J. Self-concept and dental health behaviors in adolescents. J Clin Periodontol 1997; 24: 335-9.
7. Källestål C, L. Dahlgren and H. Stenlund, Oral health behavior and self-esteem in Swedish children. Soc Sci Med 2000; 51: 1841–1849.
8. Kneckt MC, Keinanen-Kiukaanniemi SM, Knuuttila ML, Syrjala AM.. Self-esteem as a characteristic of adherence to diabetes and dental self-care regimens. J Clin Periodontol 2001; 28: 175-80.
9. West KP, DuRant RH, Pendergrast R. An experimental test of adolescents' compliance with dental appointments. J Adolescent Health 1993; 14: 384-9.
10. Gerson AC, Gerring JP, Freund L, Joshi PT, Capozzoli J, Brady K, Denckla MB. The Children's Affective Lability Scale: a psychometric evaluation of reliability. Psychiatry Res 1996; 20: 189-98.
11. Simons JS, Carey KB. Risk and vulnerability for marijuana use problems: the role of affect dysregulation. Psychol Addict Behav 2002; 16: 72-5.
12. Benazzi F, Akiskal HS. A downscaled practical measure of mood lability as a screening tool for bipolar II. J Affect Disord 2005; 84: 225-32.
13. Koenigsberg HW, Harvey PD, Mitropoulou V, Schmeidler J, New AS, Goodman M, Silverman JM, Serby M, Schopick F, Siever LJ. Characterizing affective instability in borderline personality disorder. Am J Psychiatry 2002; 159: 784-8.
14. Perugi G, Toni C, Travierso MC, Akiskal HS. The role of cyclothymia in atypical depression: toward a data-based reconceptualization of the borderline-bipolar II connection. J Affect Disord 2003; 73: 87-98.
15. Christensen LB, Jeppe-Jensen D, Petersen PE. Self-reported gingival conditions and self-care in the oral health of Danish women during pregnancy. J Clin Periodontol 2003; 30: 949-53.
16. Honkala S, Al-Ansari J. Self-reported oral health oral hygiene habits and dental attendance of pregnant women in Kuwait. J Clin Periodontol 2005;32:809-14.
17. Stahlnacke K, Soderfeldt B, Unell L, Halling A, Axtelius B. Perceived oral health changes over 5 years in one Swedish age-cohort. Community Dent Oral Epidemiol 2003; 31: 292-299.
18. Watkins CL, Lightbody CE, Sutton CJ, Holcroft L, Jack CI, Dickinson HA, van den Broek MD, Leathley MJ. Evaluation of a single-item screening tool for depression after stroke: a cohort study. Clin Rehabil. 2007; 21: 846-52.
19. Chabrol H, Rousseau A, Callahan S. Results of a Scale Assessing Instability of Self-esteem. Can J Behav Sci 2006; 38: 136-141.
20. Oliver MO, Simons JS. The affective lability scales: Development of a short-form measure. Pers Individ Dif 2004; 37: 1279–1288.
21. Kernis MH, Cornell DP, Sun CR, Berry A, Harlow T. There's more to self-esteem than whether it is high or low: the importance of stability of self-esteem. J Pers Soc Psychol 1993; 65: 1190-204.
22. Syrjala AM, Ylostalo P, Niskanen MC, Knuuttila ML. Relation of different measures of psychological characteristics to oral health habits, diabetes adherence and related clinical variables among diabetic patients. Eur J Oral Sci 2004; 112: 109-14.
23. Ylostalo P, Ek E, Knuuttila M. Coping and optimism in relation to dental health behavior--a study among Finnish young adults. Eur J Oral Sci 2003; 111: 477-82
24. Freire MC, Sheiham A, Hardy R. Adolescents' sense of coherence, oral health status, and oral health-related behaviors. Community Dent Oral Epidemiol 2001; 29: 204-12.

25. Savolainen JJ, Suominen-Taipale AL, Uutela AK, Martelin TP, Niskanen MC, Knuuttila ML. Sense of coherence as a determinant of toothbrushing frequency and level of oral hygiene. J Periodontol 2005; 76: 1006-12.
26. Anttila S, Knuuttila M, Ylostalo P, Joukamaa M. Symptoms of depression and anxiety in relation to dental health behavior and self-perceived dental treatment need. Eur J Oral Sci 2006; 114: 109-14.
27. Kurer JR, Watts TL, Weinman J, Gower DB. Psychological mood of regular dental attenders in relation to oral hygiene behavior and gingival health. J Clin Periodontol 1995; 22: 52-5.
28. Kneckt MC, Syrjala AM, Knuuttila ML. Locus of control beliefs predicting oral and diabetes health behavior and health status. Acta Odontol Scand 1999; 57: 127-31.
29. Hugoson A, Ljungquist B, Breivik T. The relationship of some negative events and psychological factors to periodontal disease in an adult Swedish population 50 to 80 years of age. J Clin Periodontol 2002; 29: 247-53
30. Deinzer R, Hilpert D, Bach K, Schawacht M, Herforth A. Effects of academic stress on oral hygiene–a potential link between stress and plaque-associated disease? J Clin Periodontol 2001; 28: 459-64.
31. Mettovaara HL, Suominen-Taipale AL, Uutela AK, Martelin TP, Knuuttila ML. Cynical hostility as a determinant of toothbrushing frequency and oral hygiene. J Clin Periodontol 2006; 33: 21-8.
32. Gatchel RJ. Psychosocial Factors That Can Influence the Self-Assessment of Function. J Occup Rehabil 2004; 14: 197-206.
33. Smith TW, Ruiz JM. Psychosocial influences on the development and course of coronary heart disease: current status and implications for research and practice. J Consult Clin Psychol 2002; 70: 548–68.
34. Kiecolt-Glaser JK, McGuire L, Robles TF, Glaser R. Psychoneuroimmunology: psychological influences on immune function and health. J Consult Clin Psychol 2002; 70: 537-47.
35. Ciacci C, Iavarone A, Siniscalchi M, Romano R, De Rosa A. Psychological dimensions of celiac disease: toward an integrated approach. Dig Dis Sci 2002; 47: 2082-7.
36. Klinge B, Norlund A. A socio-economic perspective on periodontal diseases: a systematic review. J Clin Periodontol 2005; 32: 314-25
37. Airila-Mansson S, Soder B, Jin LJ, Soder PO, Klinge B. Self-reporting of periodontal diseases and clinical assessment outcome in a Swedish urban population of smokers and non-smokers. Acta Odontol Scand 2004; 62: 111-5.
38. Buhlin K, Gustafsson A, Andersson K, Hakansson J, Klinge B. Validity and limitations of self-reported periodontal health. Community Dent Oral Epidemiol 2002; 30: 431-7.
39. Kallio P, Uutela A, Nordblad A, Alvesalo I, Murtomaa H, Croucher R. Self-assessed bleeding and plaque as methods for improving gingival health in adolescents. Int Dent J 1997; 47: 205-12.
40. Klinge B. Self-reporting measures for periodontal disease. Evid Based Dent 2006; 7: 71.
41. Gilbert AD, Nuttall NM. Self-reporting of periodontal health status. Br Dent J 1999; 13: 241-4.

About the Authors

Alexandrina L. Dumitrescu, BDS, PhD

Dr. Dumitrescu is an Assistant Professor in the Department of Periodontology of the Faculty of Dentistry at the University of Medicine and Pharmacy "Carol Davila" in Bucharest, Romania. She is a member of the Romanian College of Dentists, the Scandinavian Society of Periodontology, and the International Academy of Periodontology. Her professional interests include periodontology, restorative dentistry, behavioural dentistry, and distance education in dentistry.

e-mail: alexandrina_l_dumitrescu@yahoo.co.uk

Carmen B. Dogaru, MD

Dr. Dogaru is an Assistant Professor in the Department of Biochemistry of the Faculty of General Medicine at the University of Medicine and Pharmacy "Carol Davila" in Bucharest, Romania. Her research interests include molecular biology, point mutations, heat shock proteins, health psychology. She is a member of the Romanian Society of Biochemistry and Moecular Biology (SRBBM).

Cristian D. Dogaru, MD

Dr. Dogaru is an Assistant Professor in the Department of Biochemistry of the Faculty of General Medicine at the University of Medicine and Pharmacy "Carol Davila" in Bucharest, Romania. His research interests include molecular biology, point mutations, hormonology and transduction mechanisms, nitric oxide, health psychology. He is a member of the Romanian Society of Biochemistry and Molecular Biology (SRBBM).