Correlations between Stress, Anxiety and Coping Mechanisms in Orthodontic Patients

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Dear Editor-in-Chief

The extrapolation of stress concept in the field of medicine is of great interest nowadays. In correlation with stress, anxiety often lies at the basis of the decisions to avoid an orthodontic treatment, delay the beginning of it or the scheduled visit to a consultation. The perception of the severity of a malocclusion varies according to the degree of physiognomic damage and according to the personal variables. Social anxiety, fear of being rejected by peers, conflicts with adults - parents, teachers - may occur both before and after applying the orthodontic appliance. The presence of a physical anomaly, especially when it affects patients' facial appearance, has psychological and social consequences, being in most cases a major source of stress for patients and their family.

The ability of adjusting, also called coping, plays an essential role in controlling stress. The patient tries to cope with stress symptoms by developing a wide range of coping mechanisms. Coping stands for any mechanism of prevention and adjustment to stress, for any transaction between body and environment in order to reduce stress intensity. The coping mechanisms are, thus, acting to prevent, to alter or annihilate the presumed negative effects of a future event, or to adapt in order to reduce distress if it has already been induced (1). The concept of coping was first introduced in psychology by Lazarus in 1966 and he promoted it through a prodigious research activity (2).

In order to avoid the destructive effects of stress, the individual resorts to several defense mechanisms. These mechanisms are designed to protect the individual against anxiety and harmful emotional consequences caused by stress (3). The individual's ability to control and adjust to stress consists of: defense mechanisms, physical activities and sport, psychotherapy, stress adjusted biological responses (1). Children are brought to an orthodontist by their parents, accepting the treatment just to please or not to upset them. In an adolescent case, the request for orthodontic assistance should be regarded as an adaptive coping mechanism of the patient with the stress generated by their malocclusion. In most cases the decision to seek orthodontic treatment is influenced by a combination of socio-economic, ethnic and cultural factors, including the perception of the facial aesthetics and the smile (4, 5).

The purpose of our study was to analyze the correlations between the following variables: perceived stress, state-anxiety, trait-anxiety and coping mechanisms. The study group consisted of 82 patients with an average age of 12yrs±3 months (age 7-18 years old), that requested orthodontic

treatment at the Department of Dentistry, University of Oradea, Romania, during the year of 2013. There were 34 males (41.46%) and 48 females (58.54%) in the study group subjects. All patients were asked, by means of the provided answers, to clarify their position regarding the statements contained in the evaluation instruments that were used: the Perceived Stress Questionnaire (PSQ) (6), the State-Trait Anxiety Inventory (for children – STAIC – up to 14 years, and for adults – STAI), (7), and the COPE questionnaire (8). The COPE questionnaire describes 14 coping scales, such as: active coping, planning, suppression of competing activities, restraint coping, seeking instrumental social support, seeking emotional social support, positive reinterpretation, acceptance, denial, venting of emotions, turning to religion, mental disengagement, behavioral disengagement and alcohol-drug use. Research data were statistically processed using the Statistical Package for Social Sciences – PC, Windows Version 15.0 (SPSS Inc., Chicago, Illinois, USA).

In the first stage of the research we determined the statistical values of the variables that measure patients' level of distress and anxiety. The next step was to conduct an analysis of correlation between variables that measure the level of stress, state-anxiety and trait-anxiety for the sample of patients included in the study (Table 1). We observed that correlations between perceived stress, state-anxiety and trait-anxiety for the subjects who requested orthodontic consultations are highly positive ($P<0.01$). The values suggest a stronger correlation between perceived stress and state-anxiety than between perceived stress and trait-anxiety. To investigate the relationship between perceived stress, state-anxiety, trait-anxiety and coping mechanisms, we calculated the Pearson

correlation coefficients. Our study showed the existence of certain relationships of inverse covariance (investigated variables vary in reverse way, e.g. the perceived stress is higher while preferences for the use of active coping decrease) at a statistically significant threshold ($P< 0.01$) between:

- Level of distress, state-anxiety and mechanisms of active coping;
- State-anxiety and acceptance coping.

We also noticed the existence of reverse correlations ($P< 0.05$) between:

- Level of distress and planning coping, restraint coping, acceptance coping;
- State-anxiety and planning coping, restraint coping;
- Trait-anxiety and acceptance coping.

Instead, we noticed the existence of some statistically significant positive correlations ($P< 0.05$) between:

- Level of distress, state-anxiety and seeking instrumental social support, seeking emotional social support;
- State-anxiety and mental disengagement;
- Level of distress and behavioral disengagement.

The aforementioned results indicate that patients with a high level of anxiety and distress make less use of active forms of coping, planning, restraint and acceptance. Another way of grouping patients with high level of anxiety and distress is to associate certain forms of coping considered less efficient: mental disengagement and behavioral disengagement. It comes to no surprise the direct correlation between the high level of anxiety and distress and the seeking of instrumental social support and emotional social support.

Table 1: The correlations between variables of stress (SPQ), state-anxiety (STAI - X1) and trait-anxiety (STAI - X2) in orthodontic patients

Scale	SPQ	STAI - X_1	STAI - X_2
SPQ	1.000	.843[xx]	.543[xx]
STAI - X_1		1.000	.550[xx]
STAI - X_2			1.000

[xx]$P<0.01$

Considering the patient's psychological status at the beginning of the orthodontic treatment, the orthodontist should give great importance to a good relationships with the patient, which might be described in terms of a good information and communication, respectful tackling and, overall, the quality and attention, in order to obtain a compliant patient and satisfaction with treatment outcome (9,10).

Our findings suggest that the level of stress and anxiety must be reduced from the beginning of the orthodontic treatment. Thus, new information emerging from the field of psychology should be brought to the attention of orthodontists in order to raise the level of competence and professionalism.

Acknowledgments

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