

Original Paper

Alteration of the level of salivary cortisol under psychological stress and its relationship with rumination and personality traits

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Abstract

Background and Objective: Gender differences in biobehavioral responses to environmental stressors and experience of psychological stress should be identified. This study was done to evaluate the changes of the level of salivary cortisol under psychological stress and its relationship with rumination and personality traits.

Methods: In this case-control study, for 45 medical students, The NEO Personality Inventory-Short Form and emotional control questionnaire (ECQ) were filled two months before the final examination. Saliva samples were taken from students in the non-stress (control) and examination stress conditions. Salivary cortisol levels were measured by ELISA method.

Results: Gender differences were not observed in the level of salivary cortisol under psychological stress. Significant difference was observed between the mean of salivary cortisol in the non-stress and under examination stress conditions. Positive correlation was found between traits of neuroticism ($P<0.05$) and rumination ($P<0.05$) with salivary cortisol as well as negative correlation between the traits openness to experience ($P<0.05$) and angry control ($P<0.05$) with salivary cortisol. Neuroticism, rumination and angry control may predict a substantial variance (32%) of salivary cortisol under exam stress.

Conclusion: Psychological stress leads to increase in the secretion of salivary cortisol unrelated to gender. Subjects with different personality traits are prone to cortisol responses to stress based on their particular character.

Keywords: Salivary cortisol, Stress, Personality traits, Anger, Rumination

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