

**Republic of Iraq
Ministry of Higher Education
And Scientific Research
University of Baghdad
College of Dentistry**



**Assessment of alpha-amylase and cortisol
as salivary psychological stress markers
in relation to temporomandibular
disorders among a sample of dental
students**

A Thesis Submitted to the Council of the College of
Dentistry at the University of Baghdad in Partial
Fulfillment of the Requirements for the Degree of Master
of Science in Oral Medicine

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2014 A.D

1435 A.H

Abstract

Background: University dental students perceived a higher level of stress prior to each examination especially the final . Therefore, there is a need for a useful noninvasive biomarker for measuring acute stress in those students. Many studies considered salivary alpha-amylase as a stress biomarker that is most often used in conjunction with cortisol. Understanding of the exact association between these two salivary stress markers are poorly established. Using a Helkimo anamnestic and clinical dysfunction scoring index for temporomandibular disorders can give a better insight about the association between these markers and temporomandibular joint disorders.

The aims of study: was to evaluate the levels of salivary alpha-amylase and salivary cortisol in stressed students with temporomandibular joint disorders and the differences between these markers in relation to temporomandibular joint disorders students. This might give a better understanding to the role of psychological stress as an etiological factors for developing temporomandibular joint problems.

Subjects, materials and methods: A total eighty (60 study and 20 control) participants aged between 20 and 24 years, were recruited for this study. The participants were final year undergraduate Baghdad university dental students who were examined and gave saliva samples before their final academic examination. Those with temporomandibular joint disorders problems were exposed to psychological stress and included on the study. While, those who were taking corticosteroids or hormone supplementation including oral contraceptives, or having history of head injury, orthodontic treatment, occlusal disharmonies and muscle tenderness due to systemic diseases as fibromyalgia, or having more than 2 missing posterior teeth were excluded. Salivary assay kits (alpha-amylase and cortisol) were used to measure those variables and a Helkimo anamnestic and clinical dysfunction scoring for temporomandibular joint disorders were utilized in this study.

Results: There is statistically a highly significant difference of the salivary cortisol and salivary alpha-amylase in the patient group(stress with temporomandibular joint disorders) and control group. The absence of correlation between these salivary markers was founded. Correlation analysis of salivary cortisol with Helkimo anamnestic and clinical dysfunction score shows positive association expressed by significant probability of error (p) value while for salivary alpha-amylase there is no association .

Conclusion: This study demonstrates that salivary alpha amylase can be used as a stress biomarker in conjunction with cortisol to assess temporomandibular joint problems due to psychological stress in university students.