Relationship Between Salivary Cortisol and Mood in Males age 20 - 30

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Introduction

There is evidence that the alteration of Hypothalamic-pituitary-adrenal axis (HPA) is associated with chronic diseases (Sergio 2008). Recent studies have shown that subjective mood is a reflection of psychological well-being which may interact with HPA activity, and may affect metabolic processes and aspects of immune function (Simpson et al. 2008). Studies have shown that higher levels of glucocorticoids are associated with affective disorders and alteration in mood (van Eck et al. 1996, Kuehner et al. 2007, Simpson et al. 2008).

Mood is a subject’s affective state which can be conceptualised as six independent continua, tension, depression, anger, vigour, fatigue, and confusion (McNair et al., 1971). Previous studies had provided evidence the effect of the POMS in studying subjective mood (McNair et al., 1971). Cortisol concentrations vary according to a circadian rhythm, with highest concentration observed between 0600 and 0800 (depending on awakening time) and declining throughout the day, with lowest concentrations noted around midnight. There is evidence to suggest that this rhythm can become disrupted with age (Simpson et al., 2008, Sergio 2008). This contributes to conflicting results of several studies done on mood and cortisol in healthy individuals. Although previous studies have provided evidence of relationships between cortisol and mood, the present study contributes to the existing literature by investigating a relationship between salivary cortisol and mood in males age 20-30. Better understanding of relationships between mood and cortisol secretion due to HPA activity may assist in developing therapeutic interventions for the prevention and treatment of chronic disease. It was hypothesised that those with positive moods would have lower salivary cortisol levels than those experiencing negative moods.

Materials and Methods

Preparatory phase
* Approval by BYU-Hawaii Institutional Review Board (IRB)
* 12 participants (males age 20 – 30) recruited from Biology class

Research phase
* Saliva samples and mood assessment were collected at the same time each Monday, Wednesday, and Friday afternoon.
* Saliva Cortisol concentrations were determined by Radio Immuno Assay at Salametric Laboratory
* Mood were assessed using POMS questionnaire
* Differences in cortisol concentration and mood were analyzed by paired repeated measures ANOVA

Results

Contrary to the initial hypothesis, there was no significant relationship between cortisol level and mood observed in males ages 20 – 30. Both mood and cortisol concentrations remained relatively stable throughout the study.

In this present study there was no significant difference in mood. In retrospect, the fact that mood did not change over the cause of the study should result in no changes in cortisol.

Previous research on clinical populations with specific mood disorders provided the evidence of relationships between salivary cortisol and mood (Simpson et al. 2008). In this present study, the results is restricted to a nonclinical population of young adult males. While the experimental manipulation of mood did not occur in this study, it is nevertheless of great importance to expand respective research on the role of mood and it connection with neuroendocrinological parameters to the study of clinically depressed patients.

References


Acknowledgements

I am sincerely grateful for Randy Day’s extensive assistance in this research project’s developmental, execution, and analysis phases. I would also like to thank Sean Ransom for his assistance in the analysis phase. Finally, I am indebted to the advice and direction provided by BYU-Hawaii’s Biology faculty in their review of my research paper and presentations. This work was supported by the BYU-Hawaii FAST (Faculty Assisted Student Teaching) program’s generous funding.