Personality Characteristics and Women's Health: Evidence that High Levels of Trait Hostility and Anxiety Reduce Overall Quality of Life

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Introduction

Our lab has conducted multiple experiments examining the effects of personality on the ability to process stress, which has been demonstrated to differentially require right hemisphere resources. We have consistently found sex differences across experiments, including the ability to complete a spatial task after consuming caffeine.

The current research is a comparison of two experiments examining changes in the ability of the right hemisphere to regulate two stressors concurrently in women with high levels of trait hostility (experiment one) and trait anxiety (experiment two). We predicted that high hostile and high anxious women would show similar patterns of reduced task performance and increased heart rate and blood pressure after stress.

Methods

- **EXPERIMENT ONE: 163 women completed the Cook-Medley Hostility Scale, and a Sleep Quality Scale. Twenty high and 27 low hostile women then completed a verbal and non verbal fluency task.**
- **EXPERIMENT TWO: 157 women completed the Trait subscale of the State-Trait Anxiety Inventory, a Medical History Questionnaire, and a Facial Affect Identification measure. Twenty-eight high and low trait anxious women then completed a Verbal Learning Task after viewing an emotional video.**

Results: EXPERIMENT ONE

Results from linear regression analyses for women completing the Hostility and Sleep Quality scale	Description of findings
Trait hostility rating and the time it takes to fall asleep approaching significance ($F(1, 162) = 3.028$, $p = .08$, $R^2 = .018$).	High hostile women report taking longer to fall asleep compared to low hostile women.
Trait hostility rating and the rating of level of depression upon waking ($F(1, 162) = 4.021$, $p = .001$, $R^2 = .091$).	High hostile women report feeling more depressed upon waking relative to low hostile women
Trait hostility rating and the number of physiological symptoms experienced upon waking from a nightmare ($F(1, 160) = 7.227$, $p = .008$, $R^2 = .043$).	High hostile women report more physiological symptoms upon waking from a nightmare (i.e.: sweating, heart palpitations) relative to low hostile women.
Nonsignificant finding for trait hostility rating and the number of hours of sleep ($F(1, 162) = 1.123$, $p = .27$, $R^2 = .007$).	Despite group differences in measures of sleep quality, high and low hostile women report getting similar hours of sleep.

Table 1. Findings from screening data examining trait hostility and sleep quality.

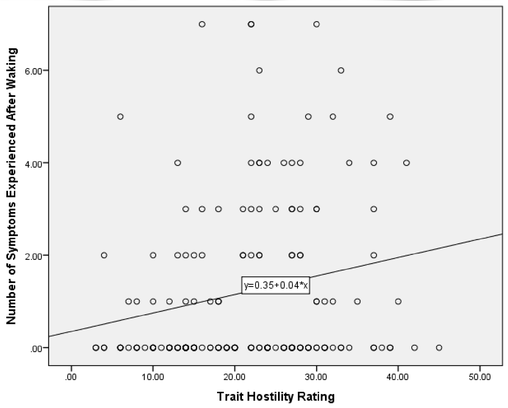

Figure 1. A significant proportion of the total variance in the number of symptoms upon waking from a nightmare was predicted by hostility scores.

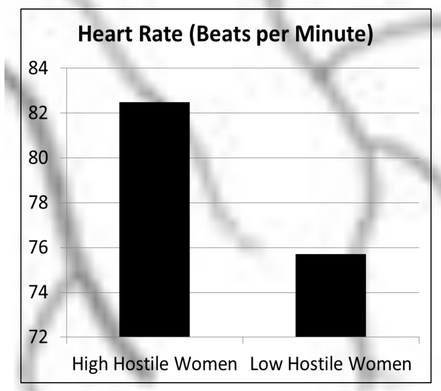

Figure 2. High hostile women showed higher heart rate across the verbal and nonverbal fluency task conditions.

Results: EXPERIMENT TWO

Results from linear regression analyses for women completing the Anxiety and Facial Affect recognition measures	Description of findings
Trait anxiety rating and the total number of medical symptoms reported ($F(1, 155) = 32.85$, $p < .0001$, $R^2 = .175$).	High trait anxious women report having more medical symptoms (i.e.: high blood pressure, heart murmur) relative to low anxious women.
Trait anxiety rating and total number of (women's) faces incorrectly identified ($F(1, 156) = 6.004$, $p = .01$, $R^2 = .037$).	High trait anxious women made more errors in identifying facial emotion (i.e.: happy, sad, surprised, neutral) from a series of pictures.
Trait anxiety rating and the total number of negative affective faces incorrectly identified ($F(1, 156) = 3.852$, $p = .05$. $R^2 = .024$).	High trait anxious women named more errors in identifying negatively valenced facial emotions (i.e.: sad, angry, disgusted).
Nonsignificant finding for trait anxiety and line deviation ($F(1, 151) = 0.001$, $p = .98$, $R^2 = .0001$).	Performance on the line bisection task did not differ as a function of trait anxiety.

Table 2. Findings from screening data for trait anxiety, medical health, and facial affect recognition.

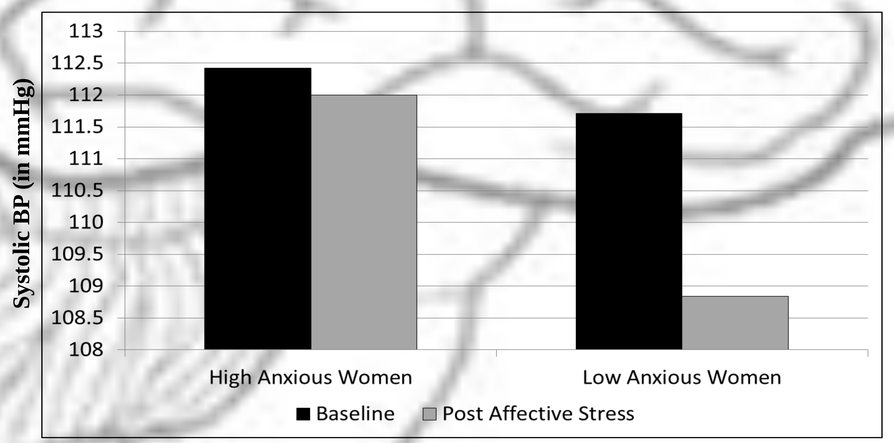

Figure 3. An Anxiety x Condition interaction approaching significance was found ($F(1, 34)=3.38$, $p=.07$), indicating high anxious women failed to show reduced SBP after exposure to emotional stress.

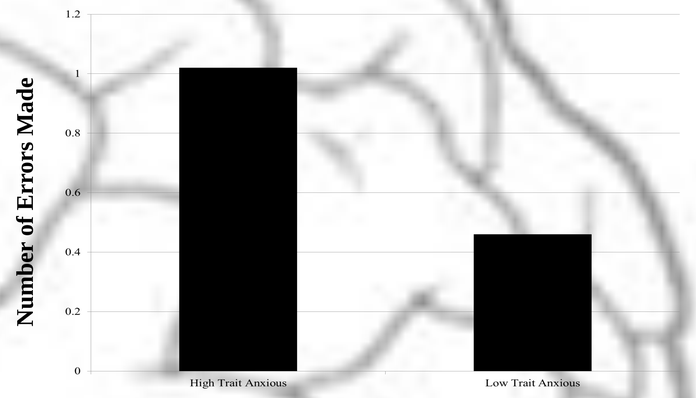

Figure 4. A main effect for Trait Anxiety for Number of Errors Made on the AAVLT was found ($F(1, 26) = 5.09$, $p = .03$), indicating that high trait anxious women made more errors on this memory task.

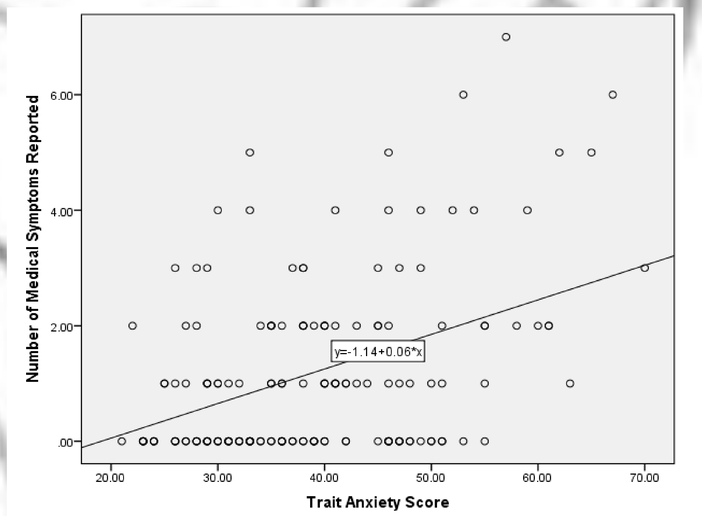

Figure 5. A significant proportion of the total variance in the number of medical symptoms reported was predicted by trait anxiety scores.

DISCUSSION

The results support our prediction that high levels of trait hostility and anxiety affect quality of life in women. Both experiments used a dual task approach to examine changes in right hemisphere activation and revealed that both high hostile and highly anxious women were less able to manage stress.

Taken together with findings from the screening data, high hostility and anxiety adversely impact quality of life for women. Right hemisphere cerebral systems responsible for management of affective stress seem to be compromised in high hostile and highly anxious women.

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