

The way an individual reacts to stressful events, both physiologically and psychologically, has been shown to predict important health outcomes. The Trier Social Stress Test (TSST) is a stressor battery involving a speech and mental arithmetic task that triggers arousal of the autonomic nervous system and hypothalamic-pituitary-adrenal (HPA) axis, two systems involved in regulating physiological responses to stress. This tool may be useful in characterizing the stress response in women undergoing the menopause transition (perimenopause), a phase of life during which women experience unique psychosocial stressors and considerable hormonal flux.

The purpose of this study was twofold: to investigate the autonomic, HPA axis, and emotional responses of perimenopausal women to a psychosocial laboratory stressor and to determine the physiologic predictors of emotional responses to the TSST in this population.

Medically healthy women (ages 45-55) in early or late menopause transition are recruited from the community and undergo the TSST. Plasma cortisol and epinephrine, heart rate (HR) and blood pressure were obtained throughout the baseline rest and in response to the TSST. Following the TSST, participants also rate the degree to which the TSST triggered anxiety and fear on a ten-point scale.

144 women have been recruited for this study thus far. Student t-tests revealed that the TSST triggered a significant increase in HR ($t = 19.6, p < .0001$), systolic blood pressure ($t = 26.7, p < .001$), diastolic blood pressure ($t = 27.7, p < .001$), epinephrine ($t = 5.8, p < .001$) and cortisol ($t = 7.9, p < .001$). The average post-TSST anxiety and fear ratings were 6.7 and 3.3, respectively. Pearson correlations also revealed that while cortisol reactivity was significantly associated with ratings of anxiety ($r = +.28, p = .004$) and fear ($r = +.24, p = .001$), indicators of autonomic activation, including HR, blood pressure and plasma epinephrine, did not predict emotional responses to the TSST.

This sample of perimenopausal women exhibited psychological, autonomic and HPA axis arousal to the TSST of comparable magnitude to that observed in other populations. Also consistent with previous literature, HPA axis reactivity was found to be more strongly associated with emotional responses to the TSST than autonomic reactivity. These results therefore suggest that despite the unique challenges faced during the menopause transition, perimenopausal women show the expected autonomic and HPA axis reactivity to mental stress and that emotional responses to stress may be modulated by the HPA axis. However, further examination of physiologic and emotional stress reactivity during different phases of the menopause transition is warranted.