

## Varying Impacts of Hot Flashes and Night Sweats on Depression and Stress

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**Objective:** Hot flashes (HF) and night sweats (NS) are common during the menopausal transition. In literature, night sweats and hot flashes are often regarded as similar phenomena at different points in the 24-hour cycle and combined into one variable as vasomotor symptoms. HF can occur during the day or night and may or may not be associated with sweating, while night sweats are periods of intense sweating that occur during the nighttime. Our goal was to explore whether women who report NS differ in levels of stress or depression from women who report HF. **Design:** Our sample was drawn from an on-going study of brown adipose tissue and HF. Women aged 45-55 living in Western Massachusetts (n=200) were interviewed about changes in their menstrual cycle, demographic characteristics, reproductive history, and bothersomeness of HF and NS over the past two weeks (not at all, a little, somewhat, a lot). The Patient Health Questionnaire (PHQ-9) as a measure of depression and the Perceived Stress Scale (PSS-10) were self-administered by participants. Linear regression analyses were completed in SPSS separately for levels of depression and stress, adjusting for menopause status (pre, peri, post), financial comfort, and marriage. The time of day when HF were more frequent (morning, afternoon, evening, night) was also examined in relation to stress and depression scores, controlling for menopausal status (pre-, peri-, and post-menopausal), financial comfort, and marriage. **Results:** In the total sample, 70% of participants experienced HF, and 63% experienced NS during the past two weeks. Women reported the highest frequency of HF at night (54%). In linear regression models, NS were significantly associated with depression ( $p < 0.001$ ,  $\beta = 0.36$ ) and stress ( $p = 0.01$ ,  $\beta = 0.19$ ), and HF were significantly associated with only depression ( $p = 0.007$ ,  $\beta = 0.22$ ) after adjusting for menopause status, financial comfort, and marriage. Women who reported the highest frequency of HF at night had significantly higher depression scores ( $p = 0.004$ ,  $\beta = 0.24$ ) but not stress scores after adjusting for menopause status, financial comfort, and marriage. **Conclusion:** Self-reported NS and HF were both associated with depression scores, but only NS were associated with stress scores. Additionally, women who reported the highest HF frequency at night had significantly higher depression scores compared to women who had the highest HF frequency during other times of day. Our findings are congruent with previous studies that found sleep disruptions during menopause have a significant impact on quality of life and suggest that NS experience may have more severe consequences than HF. These findings warrant further exploration into the varying impacts of HF and NS on women's menopause experience.

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