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Associations of Anxiety and Depressive Symptomology on Subclinical Cardiovascular Disease Risk in Young Women

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Chronic elevations in anxiety (AS) and depression symptomology (DS) contribute to cardiovascular disease (CVD) development. Women have a higher prevalence of elevated AS and DS than men. While elevated AS and DS increase the risk of hypertension and obesity, both traditional risk factors for CVD, their influence on subclinical CVD risk factors are less explored, especially in young women. Physical activity (PA) decreases subclinical CVD risk and may be protective against AS and DS. **PURPOSE:** To investigate the association between AS and DS with CVD risk in young women and to investigate the association of PA with AS, DS and CVD risk. **METHODS:** Ten young women (21 ± 1 yrs) participated in this study. Augmentation index (AIx), a measure of systemic vascular function and cardiac load, was obtained from 24-hr ambulatory hemodynamic assessment and used to measure CVD risk. PA was measured using a triaxial accelerometer as minutes per day of moderate-vigorous physical activity (MVPA) over 7 days. Participants completed the General Anxiety Disorder-7 (GAD-7) and Beck Anxiety Inventory (BAI) to measure AS and the Beck Depression Inventory (BDI) and Center of Epidemiologic Studies Depression Scale (CES-D) to measure DS. Pearson correlation coefficients explored univariate associations between AS and DS with subclinical CVD risk. Partial correlations explored MVPA as a possible mediator of the relationship between measures of AS, DS, and subclinical CVD risk. **RESULTS:** Nocturnal AIx was associated with CES-D ($r = 0.75$, $p = 0.01$) and BDI ($r = 0.65$, $p = 0.04$) scores, but not GAD-7 ($r = 0.49$, $p = 0.15$) or BAI ($r = 0.39$, $p = 0.27$). MVPA was inversely related to GAD-7 ($r = -0.78$, $p < 0.01$), BAI ($r = -0.55$, $p = 0.050$), BDI ($r = -0.65$, $p = 0.022$), and CES-D ($r = -0.69$, $p = 0.013$). MVPA was inversely associated with nocturnal AIx ($r = -0.60$, $p = 0.03$). Adjusting for MVPA caused the relationship between nocturnal AIx and BDI ($r = 0.43$, $p = 0.44$), as well as nocturnal AIx and CES-D ($r = 0.58$, $p = 0.10$), to no longer be significant. **CONCLUSION:** DS is associated with increased nocturnal cardiac load in young women. PA potentially mediates this relationship, with increases in MVPA contributing to decreased AS, DS, and cardiac load. PA has a favorable effect on both cardiovascular and mental health in young women.

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