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Associations of Sedentary Behavior and Moderate-Vigorous Intensity Physical Activity with Depressive Symptoms throughout Pregnancy

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High levels of sedentary behavior (SED) are associated with increased risk of depression, while high levels of moderate-vigorous intensity physical activity (MVPA) protect against depressive symptoms. Although depression is common during pregnancy, the associations of lower SED and higher MVPA across pregnancy with less depressive symptoms in pregnancy is unclear. **PURPOSE:** This current study aimed to evaluate associations between patterns of objectively measured SED and MVPA across pregnancy with concurrent depressive symptoms. **METHODS:** This cohort study of pregnant women (n=105) measured SED (thigh-worn activPAL3 micro) and MVPA (waist-worn Actigraph GT3X) for ≥ 4 days with ≥ 10 hours in each trimester. The 10-item Center of Epidemiological Studies Depression Scale (CES-D-10) questionnaire measured depressive symptoms during each trimester. Group-based trajectory model (GTBM) was used to group women into patterns of SED, MVPA and depressive symptom score across pregnancy. Fisher's exact test analyzed differences in depressive symptom trajectory distribution across SED and MVPA trajectories. One-way ANOVA compared continuous depressive symptom scores across SED and MVPA trajectories. **RESULTS:** Depressive symptoms worsened by the end of pregnancy (1st trimester: 5.49 ± 3.54 pts; 3rd trimester: 6.06 ± 3.56 pts; $p=0.039$). GTBM designated women into three trajectories (high, moderate, or low) of SED, MVPA and depressive symptoms across trimesters. Depressive symptom trajectories were associated with MVPA trajectories ($p=0.025$) such that the proportion of women classified in the 'high' depressive symptoms trajectory decreased with increasing MVPA trajectory: low (52.6%), moderate (26.3%), and high (21.1%). Continuous depression scores did not differ by MVPA trajectory in the 1st or 3rd trimesters; in contrast, the low MVPA trajectory had higher depression scores vs. the moderate and high MVPA trajectories in the 2nd trimester (7.08 pts, 4.31 pts, and 4.65 pts, respectively; $p<0.05$). Depressive symptom trajectories and scores did not differ by SED trajectories. **CONCLUSION:** Across pregnancy, depression appears to be associated with MVPA but not SED. Further research examining increasing MVPA during pregnancy is necessary to evaluate a potential benefit to mitigate depressive symptoms.

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