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Depressive Symptomology Predicts Nighttime Central Systolic Blood Pressure Dipping in Adults

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Blunted nighttime blood pressure (BP) dipping is correlated with an increased risk for cardiovascular disease (CVD). Psychological (depressive, anxiety, and stress symptomology) and behavioral (sleep quality and physical activity (PA)) factors have important implications for BP regulation, with improved psychological and behavioral health lowering the risk for hypertension and CVD. Whether these psychological and behavioral factors are associated with nighttime BP dipping remains unclear.
PURPOSE: To examine associations between psychological and behavioral factors with nighttime systolic BP dipping in adults. **METHODS:** Central and peripheral BP were measured in 68 adults (28±13 years, *n* = 45 women) from 24-hour ambulatory BP monitoring using an oscillometric BP device. Nighttime systolic blood pressure (SBP) dipping was calculated as a percentage: [(daytime SBP – nighttime SBP)/daytime SBP] x 100. Psychological and behavioral factors included: depressive symptomology (DS) using the Center for Epidemiologic Studies Depression Scale, anxiety symptomology (AS) via the Generalized Anxiety Disorder-7, perceived stress (PS) from the Perceived Stress Scale, posttraumatic stress disorder (PTSD) symptomology via the PTSD Checklist for DSM-5, sleep quality (SQ) from the Pittsburgh Sleep Quality Index, and moderate-to-vigorous PA (MVPA) levels from accelerometry. These psychological and behavioral factors were entered into a backward stepwise regression model to determine significant predictors of nighttime peripheral SBP and central SBP dipping.
RESULTS: DS was a significant predictor of nighttime central SBP dipping (β=0.305, *p*=0.023), explaining 30.5% of the variance in nighttime central SBP dipping. The variables excluded from the final model were AS, PS, PTSD symptomology, SQ, and MVPA (*p*>0.05). Factors measured herein were not associated with nighttime peripheral SBP dipping, with DS, AS, PS, PTSD symptomology, SQ, and MVPA all being excluded from the final model (*p*>0.05). **CONCLUSION:** DS was found to be a significant predictor of nighttime central SBP dipping, but no psychological or behavioral predictors were found for nighttime peripheral SBP

dipping. These findings suggest that DS may increase CVD risk by blunting nighttime central BP dipping.