

Resting vagally-mediated heart rate variability in the laboratory is associated with momentary negative affect and emotion regulation in daily life

Lauren Bylsma¹, Kenneth DeMarree², Tierney McMahon³, Juhyun Park⁴, Kaitlyn Biehler², and Kristin Naragon-Gainey⁵

¹University of Pittsburgh School of Medicine

²State University of New York at Buffalo

³Northwestern University

⁴McGill University

⁵The University of Western Australia

March 31, 2024

Abstract

High frequency heart rate variability (HRV) is a vagally-mediated physiological index reflecting parasympathetic activity that has been linked to emotion regulation capacity. However, very limited research has examined associations of physiological indices of regulation such as HRV with emotional functioning in daily life. The few studies that exist have small samples sizes and typically focus on only a narrow aspect of emotion regulation or emotional functioning. In this study, we examined associations between HRV assessed in the laboratory and emotional/mental health functioning in daily life using a 7-day ecological momentary assessment design in 303 adult community participants. We hypothesized that higher resting HRV would be associated with higher positive affect, lower negative affect, less affective variability, greater wellbeing, fewer depressive and idiographic [person-specific] symptoms, greater use of engagement emotion regulation strategies, and less use of avoidance emotion regulation strategies, as assessed in daily life. Results revealed that higher resting HRV in the laboratory was significantly associated with lower negative affect and less frequent use of avoidance emotion regulation strategies in daily life, although only avoidance strategies remained significant when both were included in the same model. We also observed a trend association, such that idiographic symptoms in daily life were associated with lower resting HRV. Theoretical and clinical implications are discussed, including the association of HRV with negatively-valenced, rather than positively-valenced, daily life experiences.

Hosted file

Resting_HRV_EMA_Psychophysiology_02.08.24 (1).docx available at <https://authorea.com/users/761617/articles/737757-resting-vagally-mediated-heart-rate-variability-in-the-laboratory-is-associated-with-momentary-negative-affect-and-emotion-regulation-in-daily-life>