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Elizabeth Golias
Cleveland State University

Khadeja Najjar
Cleveland State University

Brock Bodenbender
Cleveland State University

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The effect of depression symptoms on the cardiac autonomic response to positive mood induction

College of Sciences and Health Professions

Student Researchers: Elizabeth Golias, Khadeja Najjar, Brock Bodenbender, and Ilona Ponomariova

Faculty Advisor: Ilya Yaroslavsky

Abstract

Depression is characterized by a reduced capacity to experience pleasure (hedonic capacity). A growing literature suggests that hedonic capacity is supported by the sympathetic (SNS) and parasympathetic (PNS) branches of the autonomic nervous system. Both branches may work in a reciprocal fashion, or in tandem, reflecting co-activation of the SNS and PNS. While reduced PNS and increased SNS activity are associated with happy states among healthy individuals, preliminary findings suggest that depressed persons evidence blunted physiologic responses across a variety of emotion inducing stimuli. Much of this work, however, has examined PNS and SNS activity separately, and never with respect to hedonic stimuli. We examined whether depression symptoms and low hedonic capacity are associated with jointly blunted autonomic activity across the two branches.

Twenty-nine participants completed measures of depression, state hedonic capacity, and trait hedonic capacity. Physiologic baseline and reactivity to a happy film clip were also collected. SNS and PNS co-activation during baseline significantly predicted reduced state and trait hedonic capacity. Blunted reciprocal PNS and SNS reactivity to the film clip predicted elevated depression symptoms and hedonic capacity at trend levels. Clinical implications are discussed.