Interaction between Physiological and Personality Markers in the Execution of a Cognitive Task

Yanina Ledovaya
Saint Petersburg State University, Department of Psychology, Senior lecturer

Alexandra Moreno
Saint Petersburg State University, Department of Psychology, Graduate student

Abstract: Heart rate (HR) variability is a physiological marker of an individual's emotional, behavioral and cognitive reactions (Segerstrom & Nes 2007). Strength of inhibition (SI) is a stable trait referring to the ability to control behavior, suppressing the impulse to react (Strelau 2008). The aim of this study was to determine the extent to which physiological effort (HRV) and personality trait were related during the execution of a difficult cognitive task.

Following assessment of SI with the Strelau Temperament Inventory, 52 participants performed the Stroop task with simultaneous recording of HR with a pulsometer. There was no difference in HR variability between high and low Stroop task performers, but there was a significant rise in HR in those with higher SI scores — even though levels of performance remained comparable. Although findings are limited to Stroop performance, they highlight the contribution of personality to physiological states in cognition.

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