



Test anxiety among university students and its connection to heart rate variability – a pre-post comparison

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Test anxiety can have adverse effects on cognitive performance and information processing (Zeidner, 1998). Thus, it can lead to lower academic achievements or even failure (Culler & Holahan, 1980; Seipp, 1991) with negative consequences for students' self-esteem and well-being (Hembree, 1988). It is therefore crucial to understand the nature of test anxiety and its psychophysiological correlates in order to derive effective treatment methods.

The term test anxiety refers to a multifaceted, situation-specific personality trait (Spielberger, Anton, & Bedell, 1976; Hodapp, Glanzmann, & Laux, 1995). Hence, people differ in their dispositions to react with anxiety to certain stress-evoking situations (e.g., exams, oral presentations; Hodapp et al., 1995). The experience of test anxiety consists of four dimensions: worry (e.g., thoughts about failing), emotionality (e.g., bodily tension), interference (e.g., thoughts disrupting task accomplishment) and lack of confidence (e.g., low self-esteem; Hodapp, Rohrman, & Ringeisen, 2011; Hodapp et al., 1995; Stöber, 2004).

Therefore, physiological reactions (e.g., increased physiological arousal and muscle tension) are an essential element of the experience of test anxiety (Deffenbacher, 1986; Conley & Lehman,

2011), similar to anxiety in general (Hoehn-Saric & McLeod, 2000; Richards & Bertram, 2000). These increased physiological reactions are elicited through sympathetic activation (Hoehn-Saric & McLeod, 1988) while parasympathetic activation is connected to lower degrees of arousal (Appelhans & Luecken, 2006). Researchers have found that people with anxiety disorders react to stressors with diminished physiological flexibility (Hoehn-Saric & McLeod, 2000), i.e., they react with decreased intensity to laboratory stressors than healthy subjects, but show strong physiological reactions when faced with phobic stimuli. One measure to assess physiological and emotional responding is heart rate variability (HRV; Appelhans & Luecken, 2006). Subjects with signs of emotional dysregulation such as depression and anxiety show robust patterns of decreased HRV (Appelhans & Luecken, 2006). However, evidence on the relationship between HRV and test anxiety is rather sparse (Holroyd, Westbrook, Wolf, & Badhorn, 1978; Bradley et al., 2010).

With the current study, I want to further investigate the relationship between test anxiety and HRV by comparing measures of self-reported test anxiety and HRV assessed before and after examination period. To this end, students' HRV will be measured via electrocardiogram while test anxiety will be assessed via the Prüfungsangstfragebogen (PAF; Hodapp et al., 2011). Data collection will take place in July and October 2015. This study is incorporated into a large-scale study on HRV realized by the Department of General and Biopsychology of the Technische Universität Chemnitz.

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