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Treating chronic worry: Psychological and physiological effects of a training programme based on mindfulness

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ABSTRACT

The present study examines psychological and physiological indices of emotional regulation in non-clinical high worriers after a mindfulness-based training programme aimed at reducing worry. Thirty-six female university students with high Penn State Worry Questionnaire scores were split into two equal intervention groups: (a) mindfulness, and (b) progressive muscle relaxation plus self-instruction to postpone worrying to a specific time of the day. Assessment included clinical questionnaires, daily self-report of number/duration of worry episodes and indices of emotional meta-cognition. A set of somatic and autonomic measures was recorded (a) during resting, mindfulness/relaxation and worrying periods, and (b) during cued and non-cued affective modulation of defence reactions (cardiac defence and eye-blink startle). Both groups showed equal post-treatment improvement in the clinical and daily self-report measures. However, mindfulness participants reported better emotional meta-cognition (emotional comprehension) and showed improved indices of somatic and autonomic regulation (reduced breathing pattern and increased vagal reactivity during evocation of cardiac defense). These findings suggest that mindfulness reduces chronic worry by promoting emotional and physiological regulatory mechanisms contrary to those maintaining chronic worry.

Introduction

Worry has been defined as a chain of negatively affect-laden and relatively uncontrollable thoughts and images that promote mental attempts to avoid anticipation of potential threats (Borkovec, 2002). Worry may serve various adaptive functions. According to Tallis and Eysenck (1994), worry acts as an alarm warning of potential danger, prepares us to cope with anticipated threats and maintains awareness of unresolved problems. However, excessive worry is considered maladaptive and is the defining characteristic of Generalized Anxiety Disorder (GAD) (American Psychiatric Association, 1994). The warning of potential danger and the anticipation of threat imply activation of defence reactions, i.e., the fight-flight or freezing response (Borkovec, 2002). Continuous activation of this type of defence reaction represents a state of permanent stress and vigilance for negative emotional information, hence increasing the risk of physical and mental problems (Brosschot, Gerin, & Thayer, 2006; Knepp & Friedman, 2008). In addition, the mental avoidance of low-probability negative future events by engaging in worry is an inefficient coping strategy, since it does not reduce the likelihood of negative outcomes (Borkovec, Hazlett, & Diaz, 1999) or generate effective problem solving (Stöber, 1998).

The psychological and physiological correlates of chronic worry have been investigated by a number of studies in non-clinical high trait worriers and patients with GAD (Brosschot, Van Dijk, & Thayer, 2003; Borkovec, Robinson, Pruzinsky, & DePree, 1983; Borkovec & Roemer 1995; Conrad, Isaac, & Roth, 2008; Davis, Montgomery, & Wison, 2002; Dua & King, 1987; Hoehn-Saric, Hazlett, & McLeod, 1993; Hofmann et al., 2005; Jönsson, 2007; Karteroliotis & Gil, 1987; Lyonfields, Borkovec, & Thayer, 1995; Segerstrom, Glover, Craske, & Fahey, 1999; Thayer & Brosschot, 2008; Thayer, Friedman, & Borkovec, 1996; Thayer et al., 2000; Wilhelm et al., 2001). The two most consistent physiological findings were the absence of sympathetic hyper-activation (indexed mainly by skin conductance) and the presence of reduced parasympathetic control (indexed by respiratory sinus arrhythmia and heart rate variability measures). Skin conductance is a measure of eccrine sweat gland activity, which is innervated exclusively by sympathetic axonal terminations. The term respiratory sinus arrhythmia (RSA)

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