



7-Week Mindfulness and Biofeedback Training Improves Symptoms of Anxiety and Heart Palpitations in 2 Case Reports

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Background & Purpose

As subsets of mind-body therapies, biofeedback and mindfulness practices draw upon the direct causal relationship between psycho-social and physiological processes. The focused attention and open monitoring underlying the practice of mindfulness are thought to reduce emotional reactivity, while the positive reinforcement and stress management underlying biofeedback provide skills in addressing arising symptoms (1). Palpitations are an unpleasant awareness of the forceful, rapid, or irregular beating of the heart. In the absence of cardiac conditions, palpitations are often caused by medical conditions including endocrine and metabolic abnormalities, psychiatric disorders, medication effects, and drug or other substance use effects(2). The purpose of this case series is to report on two patients who were treated at Bastyr University Clinic Mind-Body shift for anxiety and associated non-cardiac palpitations.

Cases

Patient 1, a 48-year-old female presented to clinic for stress management and anxiety. She was recently diagnosed with Hashimoto's thyroiditis and associated palpitations.

Patient 2, a 25-year-old male, presented for adjunctive treatment for anxiety. Associated symptoms included heart palpitations that began at age 23 and on average occurred 3-4 times per week.

Methodology

Participants were asked to fill out validated symptom questionnaires for evaluation of symptoms of anxiety (GAD7), stress (PSS), overbreathing (Nijmegen), perfectionism (APS-R), depression severity (PHQ9), mindfulness (Five Facet Mindfulness), perceived social support (MSPSS), sleep quality (PSQI) at the start and completion of their 7-week training module. Participants were asked to commit to 7 weekly training sessions, and are given instructions for 20 minutes twice daily home-practice exercises and to use a daily awareness journal to track their home-practice.

At the start of the protocol, trainees were instructed to self-assess and develop awareness concerning their posture, breathing patterns, primary stressors and their psycho-physiological responses to such stressors. Our team used emWave and Cp8 software to visualize, and feedback in real-time, the physiological changes that take place when exposed to different scenarios (eg. emotional desensitization with storylines), and to employ different mind-body techniques improve voluntary control over physiological processes. The training protocol included: posture alignment, diaphragmatic and functional breathing, paced breathing at resonant frequency, mindfulness, heart-centered breath meditation, guided imagery, vision statements, unconditional positive regard, and positive affirmations over the course of 7 visits.

Results

Compared to baseline, after 7 weeks of mindfulness and biofeedback training, self-reported questionnaires for both patients showed a decrease in anxiety symptoms as measured by Generalized Anxiety Disorder-7 (GAD7) validated symptoms questionnaire. Moreover, both participants reported a 95% improvement in frequency and severity in heart palpitations. Of note, symptoms of stress measured by Perceived Stress Scale (PSS), overbreathing measured by Nijmegen Questionnaire, perfectionism measured by Almost Perfect Scale (APS-R), depression severity measured by Patient Health Questionnaire-9 (PHQ9), increase in mindfulness measured by Five Facet Mindfulness Questionnaire, perceived social support measured by Multidimensional Scale of Perceived Social Support (MSPSS), and sleep quality measured by Pittsburg Sleep Quality Index (PSQI) improved.

Discussion & Conclusion

This case series shows that Mindfulness and HRV-biofeedback assisted mind-body care were successfully utilized to treat anxiety and associated non-cardiac palpitations in two patients. Because of an association between Hashimoto's thyroiditis and anxiety disorders, mind body therapies should be considered in patients with autoimmune thyroiditis and associated anxiety. Further research is needed in this area in order to expand knowledge, access, and successes in medical and psychological alternative care.

Acknowledgements

The 7-week biofeedback protocol used at Bastyr University, CA clinic is based on the 8-Week Resiliency Protocol titled Transforming Health through Breathing, Posture & HRV by Brad S. Lichtenstein, ND BCB BCB-HRV of The Breath Space Breathspace.com and on Inna Khazan's work The Clinical Handbook Of Biofeedback. Chichester: Wiley Blackwell; 2013.

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