

Mindfulness-Based Stress Reduction as Adjunctive Therapy for Postural Orthostatic Tachycardia Syndrome



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Background

POTS is a dysautonomia disorder, meaning there is an imbalance or dysregulation of the parasympathetic and sympathetic nervous system. Patients have heterogeneous symptoms, including but not limited to lightheadedness, palpitations/tachycardia, and syncope.¹

Anxiety states correlate with sympathetic nervous system overdrive.⁶ Patients with POTS have been found to have general anxiety comorbid with their POTS but also to have anxiety secondary to living with POTS.⁷

Heart rate variability (HRV) measures the activity and balance between the autonomic nervous system branches. High HRV occurs when the time interval between heart beats differs from beat to beat.² Low HRV has been empirically associated with poor cardiovascular and psychological health.^{3,4} Low HRV has also been seen in patients with POTS.⁵

Mindfulness is the practice of bringing attention and awareness to present internal and external events and doing so without attaching judgement to our experiences. Mindfulness programs have been studied in many patient populations, showing improvements in cardiovascular health, psychological health, heart rate variability, and physical symptoms.^{8,9}

Aim: This pilot study aims to be the first to explore the use of an eight-week, online mindfulness-based stress reduction (MBSR) program in adults with POTS.

Methods

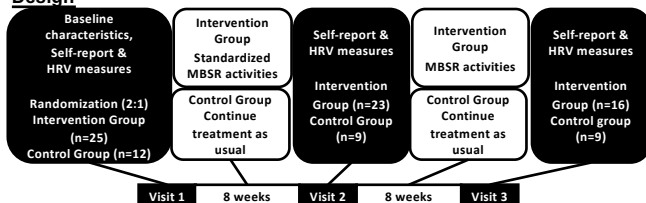
Inclusion

- English-speaking
- Age 18-55
- POTS diagnosis

Exclusion

- Implanted electrical cardiac device
- Concurrent psychotherapy
- Recent psychiatric hospitalization
- Recent change in psychotropic medication
- Untreated severe mental illness

Design



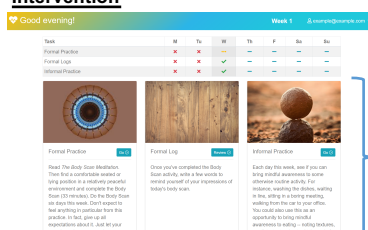
Measures

Physiologic: HRV (SDNN, LF)

Somatic: Autonomic (COMPASS-31), General (PHQ-15)

Psychological: Depression (PHQ-8), Anxiety (GAD-7), Anxiety Sensitivity (ASI), POTS-related stress (RSQ), Mindfulness (MAAS)

Intervention



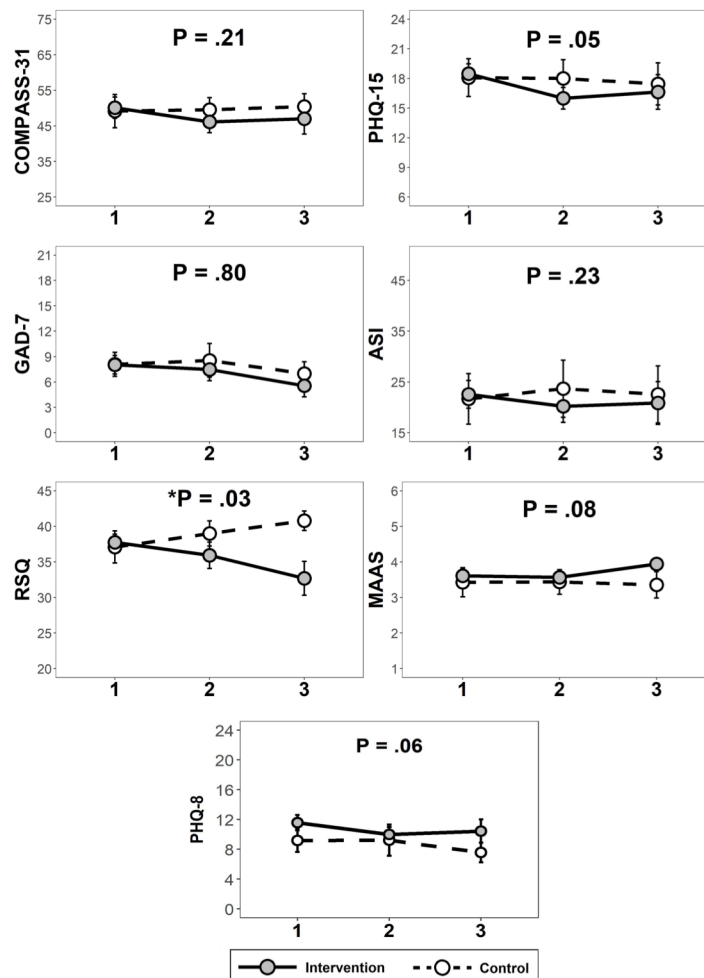
Guided meditations (audio),
Mindful yoga (video),
Reflection journals

Statistical Analyses

Linear mixed models

Results

Change in Somatic and Psychological Symptoms by Group Over Time



Note: Intention to treat analysis, p values correspond to interaction term. Error bars = +/- 1 SE.

HRV analyses showed minimal increases in HRV over time with no appreciable differences between groups (figure not included).

Conclusions

Self directed MBSR appeared to have positive effects on physical and psychological symptoms, particularly perceived illness-related stress. Results were robust across adherence patterns. Self-directed MBSR did not appear to influence HRV. There may have been a positive effect due to caregiver presence and/or placebo. Improvements may be sensitive to adherence patterns. There may be a role for behavioral/psychological interventions, including MBSR programs, in helping patients with POTS adequately manage living with the symptoms and related stressors of this chronic illness. Consultation psychiatrists may be the first to offer such interventions as adjunctive treatment when seeing patients with high symptom burdens in the hospital or outpatient clinic.

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