

# A Prospective Cohort Study on the Effectiveness of Weekly Yoga on Depression, Anxiety, and Stress in a Family Medicine Residency Program

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## Abstract

Residents and Graduate Medical Education (GME) staff are at higher-than-average risk for experiencing symptoms of depression, anxiety, and stress due to their careers. This study explored the coordination, implementation, and impact of a weekly yoga intervention on depression, anxiety, and stress. Based on our findings, there is a dose-response relationship between participating in a weekly, guided yoga session and decreasing scores for symptoms of depression, anxiety, and stress.

## Introduction

Resident physicians are at a higher-than-average risk of experiencing depression or having depressive symptoms, with a rate up to 10% higher than the population. On top of the immediate risk, there is a secondary risk of poor-quality patient care and an increase in medical errors.<sup>1-2</sup> There is an immediate need for meaningful interventions. Yoga is a non-pharmacologic option that shows promise in treating depression, anxiety, and stress. There is overwhelming evidence that yoga reduces depression, anxiety, and stress in some settings. It has also been shown to improve sleep patterns and enhance overall well-being and quality of life. This prospective cohort study seeks to explore the impact of weekly yoga on the reduction of depression, anxiety, and/or stress in the setting of an FMRP.

## Methods

Residents and GME staff were surveyed to determine baseline demographics, as well as depression, anxiety, and stress scores using the DASS-21 scale. A weekly, voluntary yoga intervention was then implemented under the guidance of the residency wellness coordinator utilizing a mixture of both in-person instructors and prerecorded instructors.

DASS-21 Scoring	Stress	Anxiety	Depression
Normal	0-7	0-3	0-4
Mild	8-9	4-5	5-6
Moderate	10-12	6-7	7-10
Severe	13-17	8-9	11-13
Extremely Severe	17+	10+	14+

After 6 weeks, all residents and GME staff were reassessed utilizing the DASS-21 scale to determine the effect of the intervention. Student's T-Test was then utilized to determine statistical significance between pre-intervention results, post-intervention aggregate results, non-participants, participants, participants that came <3 times, and participants that came ≥3 times.

## Results

Twenty-two residents and GME staff completed the initial survey. There were 11 male and 11 female respondents. The mean age was 36 with a standard deviation of 11 years. Half of respondents identified as Caucasian, and half identified as another race. 3 respondents had hypertension, 3 had anxiety or depression, and 2 had other chronic medical conditions.

According to DASS-21 results (Figure 1), at baseline the respondents were experiencing moderate symptoms of stress, anxiety, and depression. 6 weeks after intervention, the average amongst all respondents decreased to mild symptoms, with yoga participants experiencing the lowest scores in a dose-response relationship.

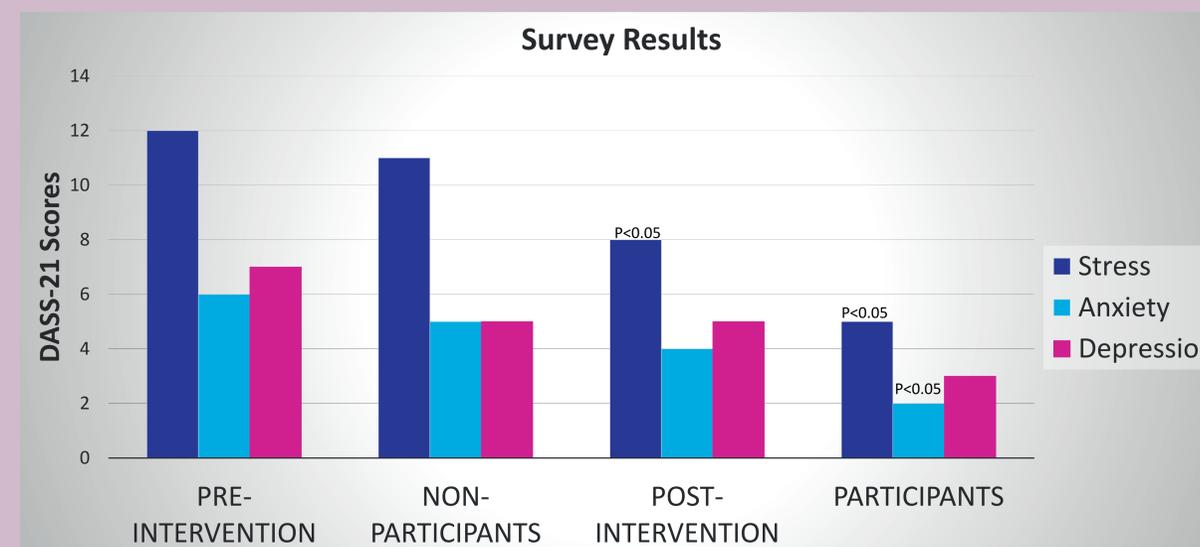


Figure 1 - Results

Comparison Groups	Overall	Stress	Anxiety	Depression
Pre vs. All Post	0.882	† 0.015	0.347	0.196
Pre vs. Non-Participants	0.362	0.323	0.729	0.424
Pre vs. Yoga Participants	† 2.278 E-05	† 5.839 E-05	† 0.026	0.056
Yoga vs. Non-Participants	† 0.00034	† 0.00017	0.105	0.094
Pre vs. Yoga <3 Times	† 0.007	† 0.026	0.223	0.142
Pre vs. Yoga ≥3 Times	† 1.399 E-06	† 1.29 E-05	† 0.007	0.046
Non-Participants vs. Yoga <3	0.0538	0.0736	0.466	0.310
Non-Participants vs. Yoga ≥3	† 1.842 E-05	† 3.052 E-05	† 0.033	0.079
Yoga <3 vs. Yoga ≥3	† 0.01275	0.120	0.055	0.406

Table 1 – Statistical Analysis

## Conclusion

Residents, faculty, and GME staff face challenges that put them at risk for psychological disturbance. These challenges must be faced with easily implementable and efficient interventions. Based on our findings, we demonstrate a model for a weekly meditative yoga intervention compatible with the rigors of GME that significantly reduces symptoms of depression, anxiety, and stress. This reduction may potentially reduce burnout and increase feelings of appreciation, motivation, and overall training experience.

## Limitations

This intervention was voluntary, which gives potential towards self-selection bias. The follow-up period was limited to 6 weeks as a pilot for continuing the program.

## References

- West CP, Huschka MM, Novotny PJ, et al. (2006). Association of perceived medical errors with resident distress and empathy: a prospective longitudinal study. *JAMA*. Vol. 296 No. 9 pp. 1071–1078.
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