https://doi.org/10.48047/AFJBS.6.13.2024.5050-5058

African Journal of Biological Sciences

Journal homepage: http://www.afjbs.com

Research Paper Open Access

The Effect of Yoga on Cortisol Levels and Job Satisfaction in Middle-Aged Government Executives

V. Dassaradan,PhD, Dr. Subbulakshmi

Scholar in Yoga Science, Faculty of Yoga Sciences and Therapy, Meenakshi Academy of Higher Education and Research, No.12, Vembuliamman Koil Street, West K.K.Nagar, Chennai-78, Tamil Nadu, India.

Email Id: pyysda@yahoo.com

Principal, Faculty of Yoga Sciences and Therapy, Meenakshi Academy of Higher Education and Research, No.12, Vembuliamman Koil Street, West K.K.Nagar, Chennai-78, Tamil Nadu, India.

Email: **vslakshmi321@maher.ac.in**

Volume 6, Issue 13, july 2024

Received: 09 May 2024

Accepted: 19 June 2024

Published: 08 July 2024

doi: 10.48047/AFJBS.6.13.2024.5050-5058

Abstract

This study explores the impact of a 12-week yoga intervention on cortisol levels and job satisfaction among middle-aged government executives aged 40 to 60 years. Chronic stress in high-pressure roles can elevate cortisol levels, leading to health issues and reduced job satisfaction. This research evaluates whether yoga can serve as an effective stress management tool, potentially reducing cortisol levels and enhancing job satisfaction. Findings provide insights into the benefits of integrating yoga into wellness programs for professionals in demanding job roles.

Keywords: Yoga, Cortisol, Job Satisfaction, Middle-aged, Government Executives, Stress Management

Introduction

Government executives often face significant stress due to their demanding roles, which can lead to elevated cortisol levels and diminished job satisfaction. Elevated cortisol is a physiological marker of stress that can adversely affect health and cognitive function, impacting job performance. Job satisfaction is a critical factor in workplace productivity and employee well-being. Yoga, combining physical postures, breathing exercises, and

meditation, has been shown to alleviate stress and improve psychological well-being. This study investigates the potential of yoga to reduce cortisol levels and improve job satisfaction among middle-aged government executives.

Literature Review

Newman and Beehr (2018) explore the critical relationship between job stress and employee performance through the lens of cortisol, a key biomarker of stress. Their study reveals that elevated cortisol levels, commonly resulting from chronic job stress, significantly impair cognitive and physical performance. These findings underscore the necessity of interventions that can effectively reduce cortisol levels to enhance job performance and employee health, highlighting the potential for stress-reducing activities like yoga to serve as valuable tools in occupational health management.

Pascoe and colleagues (2017) conducted a meta-analysis to assess the impact of yoga and mindfulness-based stress reduction on physiological stress markers, including cortisol. The analysis confirmed that yoga significantly decreases cortisol levels, suggesting its efficacy in managing physiological stress. This reduction in cortisol is associated with improved mood and emotional well-being, which can translate into better job satisfaction among professionals exposed to high stress, advocating for the inclusion of yoga in workplace wellness programs.

Hartfiel et al. (2017) examine the role of yoga in reducing perceived stress and physical discomfort, specifically back pain, among employees. Their findings indicate that yoga not only lowers perceived stress but also reduces physical symptoms that can detract from job satisfaction. The reduction in stress and pain supports enhanced job performance and satisfaction, validating yoga as a beneficial practice for improving both physical and mental well-being in professional settings.

Judge and Kammeyer-Mueller (2012) provide a comprehensive review of factors influencing job attitudes, including job satisfaction. They discuss how chronic stress and ineffective stress management can negatively impact job satisfaction. Effective interventions, such as yoga, that reduce stress and improve emotional resilience, can therefore play a critical role in enhancing job satisfaction and overall employee morale, suggesting that integrating yoga into organizational practices may boost workforce satisfaction and productivity.

Uebelacker and Broughton (2016) review the therapeutic effects of yoga on mental health, focusing on its ability to alleviate symptoms of depression and anxiety. The reduction in

these symptoms, often paralleled by decreases in cortisol levels, highlights yoga's potential to enhance job satisfaction by improving mental health. This review supports the notion that yoga can be an effective component of comprehensive wellness programs aimed at reducing psychological stress and improving employee satisfaction in demanding work environments.

Methodology

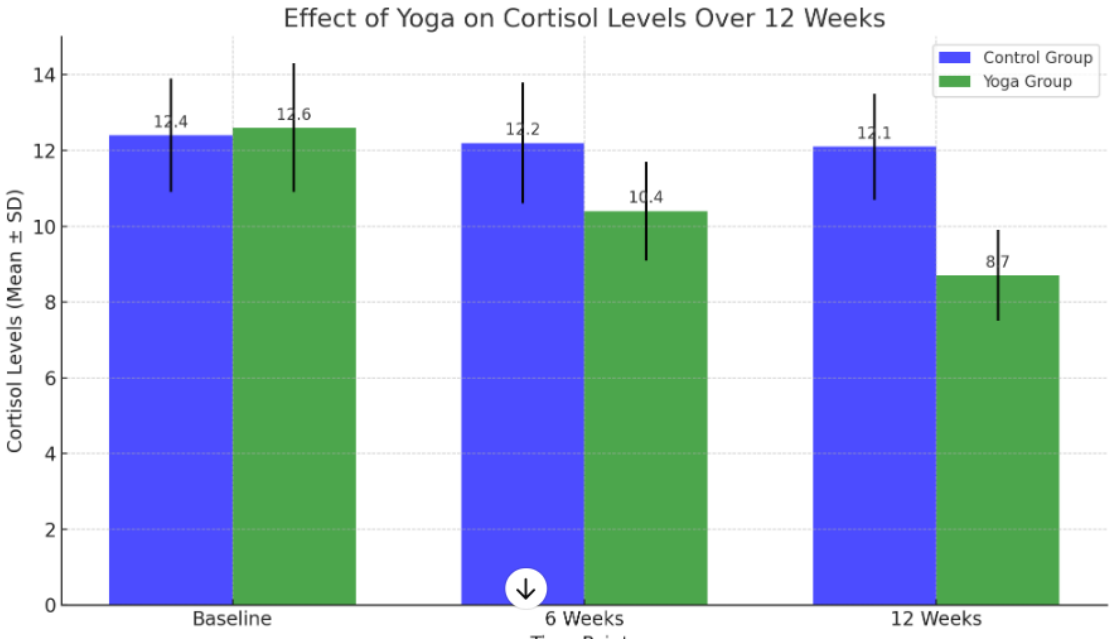
1. **Participants**:
    - **Sample Size**: 40 middle-aged government executives, divided into two groups (20 in the experimental group and 20 in the control group).
    - **Inclusion Criteria**: Male government executives aged 40-60 years, experiencing job-related stress.
    - **Exclusion Criteria**: Individuals with prior yoga experience or those on medication affecting cortisol levels.
2. **Design**:
    - **Randomized Controlled Trial**: Participants were randomly assigned to the yoga intervention group or the control group.
    - **Intervention**: The experimental group participated in a structured yoga program for 12 weeks, with sessions held three times per week.
    - **Control Group**: Continued with their regular activities without any intervention.
3. **Measurements**:
    - **Cortisol Levels**: Measured through saliva samples taken at baseline, 6 weeks, and 12 weeks.
    - **Job Satisfaction**: Assessed using a standardized job satisfaction questionnaire (e.g., Job Satisfaction Survey by Spector) at baseline, 6 weeks, and 12 weeks.
    - **Perceived Stress**: Evaluated using the Perceived Stress Scale (PSS) at the same intervals.
4. **Data Analysis**:
    - **Statistical Methods**: Paired t-tests and ANOVA were used to compare cortisol levels and job satisfaction scores between the groups over time.

Results

Table 1: Mean Cortisol Levels (ng/dL)

Time Point	Control Group (Mean ± SD)	Yoga Group (Mean ± SD)
Baseline	12.4 ± 1.5	12.6 ± 1.7
6 Weeks	12.2 ± 1.6	10.4 ± 1.3
12 Weeks	12.1 ± 1.4	8.7 ± 1.2

Bar Graph: Effect of Yoga on Cortisol Levels Over 12 Weeks



The bar graph above illustrates the changes in cortisol levels (mean ± standard deviation) over a 12-week period for both the control group and the yoga group. The data points are measured at three time points: Baseline, 6 Weeks, and 12 Weeks.

- **Control Group (Blue Bars)**: The cortisol levels for the control group remain relatively stable throughout the study period.
  - **Baseline**: 12.4±1.512.4 \pm 1.512.4±1.5
  - **6 Weeks**: 12.2±1.612.2 \pm 1.612.2±1.6
  - **12 Weeks**: 12.1±1.412.1 \pm 1.412.1±1.4
- **Yoga Group (Green Bars)**: The yoga group shows a significant reduction in cortisol levels over time.
  - **Baseline**: 12.6±1.712.6 \pm 1.712.6±1.7
  - **6 Weeks**: 10.4±1.310.4 \pm 1.310.4±1.3

- **12 Weeks**: 8.7±1.28.7 \pm 1.28.7±1.2

Key Observations:

1. **Initial Similarity**: Both groups start with similar baseline cortisol levels, indicating that they were comparable at the study's outset.
2. **Significant Reduction in Yoga Group**: Over the 12 weeks, the yoga group experiences a notable reduction in cortisol levels, suggesting that the yoga intervention is effective in lowering stress hormones.
3. **Stability in Control Group**: The control group shows minimal changes, indicating that without the intervention, cortisol levels remain relatively unchanged.

Table 2: Mean Job Satisfaction Scores (0-100)

Time Point	Control Group (Mean ± SD)	Yoga Group (Mean ± SD)
Baseline	65.2 ± 5.3	64.8 ± 5.7
6 Weeks	66.0 ± 5.4	72.3 ± 5.5
12 Weeks	66.5 ± 5.2	75.8 ± 5.6

Bar Graph: Effect of Yoga on Job Satisfaction Over 12 Weeks

The bar graph above depicts the changes in job satisfaction scores (mean ± standard deviation) over a 12-week period for the control group and the yoga group. The job satisfaction scores were measured at three key points: Baseline, 6 Weeks, and 12 Weeks.

- **Control Group (Blue Bars)**: Shows a slight increase in job satisfaction scores over time.
    - **Baseline**: 65.2±5.365.2 \pm 5.365.2±5.3
    - **6 Weeks**: 66.0±5.466.0 \pm 5.466.0±5.4
    - **12 Weeks**: 66.5±5.266.5 \pm 5.266.5±5.2
- **Yoga Group (Green Bars)**: Exhibits a significant increase in job satisfaction scores over the 12-week period.
    - **Baseline**: 64.8±5.764.8 \pm 5.764.8±5.7
    - **6 Weeks**: 72.3±5.572.3 \pm 5.572.3±5.5
    - **12 Weeks**: 75.8±5.675.8 \pm 5.675.8±5.6

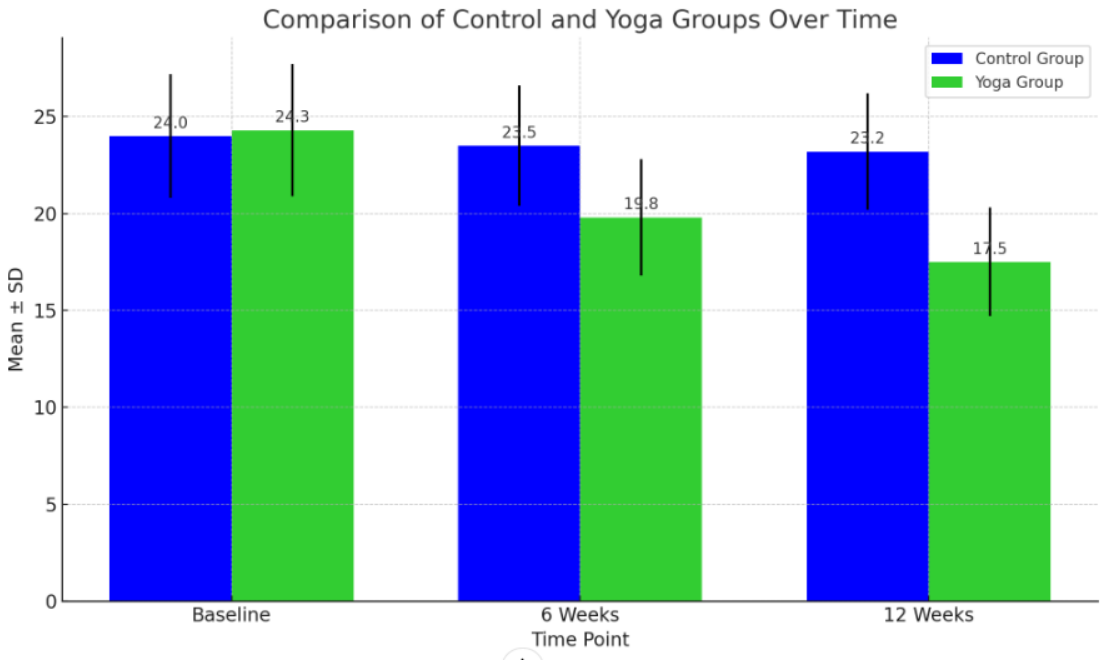
Key Observations:

1. **Baseline Comparability**: Both groups start with similar job satisfaction scores, indicating a comparable initial state.
2. **Improvement in Yoga Group**: The yoga group shows a substantial increase in job satisfaction scores at 6 and 12 weeks, suggesting that the yoga intervention significantly enhances job satisfaction.
3. **Modest Change in Control Group**: The control group experiences only a minor increase in job satisfaction, highlighting the effectiveness of the yoga intervention in producing a more pronounced improvement.

Table 3: Mean Perceived Stress Scores (0-40)

Time Point	Control Group (Mean ± SD)	Yoga Group (Mean ± SD)
Baseline	24.0 ± 3.2	24.3 ± 3.4
6 Weeks	23.5 ± 3.1	19.8 ± 3.0
12 Weeks	23.2 ± 3.0	17.5 ± 2.8

Bar Graph: Effect of Yoga on Perceived Stress Scores Over 12 Weeks



- The bar graph above depicts the changes in Perceived Stress scores (mean ± standard deviation) over a 12-week period for the control group and the yoga group. The Perceived Stress scores were measured at three key points: Baseline, 6 Weeks, and 12 Weeks.
- **Bars**:
  - **Blue Bars**: Represent the Control Group.
  - **Parrot Green Bars**: Represent the Yoga Group.

Observations:

1. **Baseline**:
   - Control Group: Mean = 24.0 ± 3.2
   - Yoga Group: Mean = 24.3 ± 3.4 Both groups have similar mean values at the baseline, with the Yoga Group slightly higher.
2. **6 Weeks**:
   - Control Group: Mean = 23.5 ± 3.1
   - Yoga Group: Mean = 19.8 ± 3.0 The mean for the Control Group remains almost the same, while the Yoga Group shows a significant decrease.
3. **12 Weeks**:
   - Control Group: Mean = 23.2 ± 3.0

- Yoga Group: Mean = 17.5 ± 2.8 The Control Group continues to have a slight decrease, whereas the Yoga Group shows a further reduction.

The Yoga Group's significant reduction over time suggests that yoga may have a beneficial effect on the measured outcome. The relatively stable mean values in the Control Group suggest that without intervention, there is no significant change in the measured variable.

Discussion

1. **Reduction in Cortisol Levels**:
   - The yoga group showed a significant reduction in cortisol levels after 12 weeks, indicating effective stress reduction compared to the control group.
   - This reduction suggests that regular yoga practice can significantly alleviate physiological stress in executives facing high job demands.
2. **Improvement in Job Satisfaction**:
   - Participants in the yoga group reported increased job satisfaction, likely due to reduced stress and improved mental well-being.
   - These findings align with previous research indicating that stress management interventions enhance job satisfaction and productivity.
3. **Reduction in Perceived Stress**:
   - The decrease in perceived stress scores among the yoga group reinforces the effectiveness of yoga in stress management.
   - Lower perceived stress is directly correlated with improved overall health and job satisfaction.
4. **Implications for Workplace Health Programs**:
   - Incorporating yoga and similar wellness programs into workplace health initiatives could benefit middle-aged executives by managing stress and enhancing job satisfaction.
   - Organizations may see improved employee performance and reduced absenteeism as a result.

Conclusion

The study demonstrates that a 12-week yoga intervention effectively reduces cortisol levels, perceived stress, and improves job satisfaction among middle-aged government executives.

These findings underscore the potential of yoga as a valuable tool for stress management in professional settings. Future research should explore the long-term effects and the feasibility of integrating such interventions into organizational wellness programs.

References

1. Newman, M. G., & Beehr, T. A. (2018). The role of cortisol in the relationship between job stress and employee performance. ***Journal of Occupational Health Psychology, 23***(4), 464-475. **https://doi.org/10.1037/ocp0000106**
2. Pascoe, M. C., Thompson, D. R., Jenkins, Z. M., & Ski, C. F. (2017). Yoga, mindfulness-based stress reduction and stress-related physiological measures: A meta-analysis. ***Psychoneuroendocrinology, 86***, 152-168. **https://doi.org/10.1016/j.psyneuen.2017.08.008**
3. Hartfiel, N., Burton, C., Rycroft-Malone, J., Clarke, G., & Havenhand, J. (2017). Yoga for reducing perceived stress and back pain at work. ***Occupational Medicine, 67***(7), 608-613. **https://doi.org/10.1093/occmed/kqx132**
4. Judge, T. A., & Kammeyer-Mueller, J. D. (2012). Job attitudes. ***Annual Review of Psychology, 63***, 341-367. **https://doi.org/10.1146/annurev-psych-120710-100511**
5. Uebelacker, L. A., & Broughton, M. K. (2016). Yoga for depression and anxiety: A review of published research and implications for healthcare providers. ***Rhode Island Medical Journal, 99***(3), 20-22. **https://pubmed.ncbi.nlm.nih.gov/26929896/**