

# The Impact of Yoga and Naturopathy Interventions on Stress Reduction and Job Satisfaction Among Government Bank Employees: A Randomized Controlled Study in Jodhpur, India

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## Abstract:

**Background:** Government bank employees in India face sustained administrative demands, performance targets, and customer-facing pressures that elevate psychological stress and erode job satisfaction. Non-pharmacological, mind–body approaches such as yoga, pranayama, meditation, and naturopathy may offer scalable, culturally consonant solutions in workplace settings.

**Objective:** To evaluate the impact of a 12-week integrated Yoga and Naturopathy (IYN) program on stress and job satisfaction among government bank employees in Jodhpur, India.

**Methods:** In a randomized controlled, pre–post design, employees (N=80) were allocated to an experimental group (n=40) receiving IYN (three offline + two online sessions/week, 90 days) or a control group (n=40; no intervention). Outcomes were stress (Personal Stress Source Inventory; PSSI–SSS) and job satisfaction (Meera Dixit Job Satisfaction Scale; JSST–DM), assessed at baseline and 12 weeks. Analyses (SPSS) used paired t-tests within groups and independent t-tests between groups;  $\alpha=0.05$ .

**Results:** Compared with controls, the experimental group exhibited a 27.5% reduction in stress ( $t(39)=11.08$ ,  $p<0.001$ ; Cohen's  $d=1.75$ ; 95% CI of change: 15.04 to 21.76) and a 14.6% increase in job satisfaction ( $t(39)=12.39$ ,  $p<0.001$ ;  $d=1.96$ ; 95% CI: 19.66 to 27.34). Between-group post-test differences favored the intervention for stress ( $\Delta=16.7$  points;  $t(78)=6.21$ ,  $p<0.001$ ; Cohen's  $d=1.39$ ; 95% CI: 11.32 to 22.08) and job satisfaction ( $\Delta=22.7$  points;  $t(78)=5.11$ ,  $p<0.001$ ;  $d=1.14$ ; 95% CI: –31.60 to –13.80).

**Conclusion:** A structured IYN program meaningfully reduced stress and improved job satisfaction in government bank employees. Given the low cost, acceptability, and feasibility of delivery (offline/online), IYN warrants broader adoption in banking and other public sector workplaces.

**Keywords:** Yoga; Naturopathy; Government bank employees; Occupational stress; Job satisfaction

## 1. Introduction

### 1.1. Occupational stress among government bank employees

Government bank employees routinely handle high transaction volumes, strict compliance protocols, and performance audits. These stressors—compounded by

customer expectations and digitalization-driven workload variability—are associated with psychological strain, reduced quality of life, and diminished job satisfaction. Evidence from Indian public sector banks shows stress is negatively associated with quality of life and work outcomes.

### 1.2. Quality of life and job satisfaction in banking

Job satisfaction mediates the relationship between workplace demands and organizational outcomes such as retention, productivity, and service quality. Contemporary analyses in the Indian banking sector and allied office-based settings consistently report that elevated stress undermines job satisfaction and cognitive performance.

### 1.3. Yoga, pranayama, meditation, and naturopathy as a holistic intervention

Yoga-based programs (loosening practices, āsana, prāṇāyāma, and meditation) reduce occupational stress and improve well-being in diverse workforces. Randomized and feasibility trials conducted at workplaces show meaningful benefits in fatigue, musculoskeletal pain, burnout, and quality of life. Naturopathy modalities (e.g., hydrotherapy, mud packs, sun exposure/heliotherapy, fasting and dietary therapy) have reported benefits for stress-related and mood outcomes and systemic inflammatory tone, aligning mechanistically with stress reduction.

### 1.4. Research gap

Although yoga has been studied in occupational contexts and small studies exist among bank employees, robust randomized evaluations integrating yoga with pragmatic naturopathy components and hybrid (offline/online) delivery in Indian banking settings are limited. This

study addresses that gap through a 12-week integrated Yoga and Naturopathy (IYN) protocol tailored to constraints of government bank schedules.

## 2. Review of Literature (Selected, 2015–2025)

1. **Nivethitha and Mooventhan (2022)** reported significant reductions in perceived stress and anxiety among corporate employees following an integrated yoga program. Similarly, **Sharma and Haider (2023)** found consistent evidence across randomized trials showing yoga-based workplace interventions improve well-being and job satisfaction.
2. **Nath et al. (2024)**, *SN Comprehensive Clinical Medicine*: Office-yoga and walking improved activation/vitality and musculoskeletal complaints in employees.
3. **Fogawat et al. (2024)**, *Journal of Education and Health Promotion*: RCT indicated workplace yoga reduced fatigue, pain, and burnout among blue-collar workers; feasibility high.
4. **Hagen et al. (2024)**, *Frontiers in Psychology*: Qualitative study reported yoga practice perceived to reduce occupational stress and enhance coping.
5. **Koroglu et al. (2024)**, *Current Psychology*: Meta-analytic evidence that hydrotherapy/balneotherapy improve anxiety/depressive symptoms.
6. **Telles, Sharma, and Balkrishna (2023)** reviewed randomized trials on yoga for occupational stress and explained that regular yoga practice reduces cortisol, balances autonomic activity, and improves emotional regulation. Their

- analysis highlighted that yogic techniques—particularly āsana, prāṇāyāma, and meditation—produce measurable physiological changes that lower perceived stress and enhance workplace well-being.
7. **Sharma and Haider (2023)** conducted a systematic review and meta-analysis of workplace yoga interventions and found consistent evidence that yoga significantly reduces perceived stress, anxiety, and burnout among employees. Their review concluded that regular workplace yoga programs improve overall mental well-being and job satisfaction, particularly when delivered for at least eight weeks with both physical and mindfulness components.
  8. **Deupa (2023)**, Far Western Review (ERIC): JSST–DM used in education workforce research; reflects established field use.
  9. **Nivethitha and Mooventhan (2022)** conducted a randomized study on corporate employees and reported that a six-week integrated yoga therapy program significantly reduced stress levels and enhanced overall well-being. The authors attributed these benefits to the combined effects of āsana, prāṇāyāma, and relaxation practices, which improved emotional stability and physiological resilience in workplace settings.
  10. **Karaarslan et al. (2022)**, *Complementary Therapies in Clinical Practice*: Mud-pack therapy improved sleep and function vs. hot packs, supporting mud therapy’s systemic relaxation benefits.
  11. **Verma et al. (2020)**, *International Journal of Yoga*: One-week residential yoga training reduced occupational stress in school principals, supporting yoga’s rapid effects.
  12. **Gálvez et al. (2018)**, *International Journal of Molecular Sciences*: Review showing balneotherapy modulates low-grade inflammation and stress responses.
  13. **Rapolienė et al. (2016)**, *Evidence-Based Complementary and Alternative Medicine*: Balneotherapy reduced stress and fatigue in seamen, suggesting hydrotherapy’s psychophysiological benefits.
  14. **Malamardi et al. (2015)**, *Indian Journal of Occupational and Environmental Medicine*, pp. 222–227: Cross-sectional analysis linked higher occupational stress with poorer quality of life among public sector bank employees.
  15. **Dwivedi & Deshpande (2015)**, *Industrial Psychiatry Journal*: Conceptual model highlighting cost-effective workplace yoga to reduce counterproductive behaviors and negative affect.

### 3. Methodology

This study employed a rigorous randomized controlled, pre-post design to evaluate the causality of the 12-week Integrated Yoga and Naturopathy (IYN) intervention. The overall methodology was structured to ensure high internal validity by randomly allocating eligible government bank employees in Jodhpur, India, to either the experimental group (receiving the IYN program) or the control group (no intervention). The entire process, from participant recruitment and stratified random sampling to the selection of validated, culturally relevant outcome measures for stress (PSSI–SSS) and job satisfaction (JSST–DM), adhered to a pre-specified analytic plan. This approach aimed to isolate the effect of the IYN protocol—delivered in a hybrid

offline/online format to suit workplace constraints, while controlling for temporal and measurement effects. The following subsections detail the design, setting, participants, intervention components, and statistical approach used to test the study's hypotheses.

### 3.1. Design

A **randomized controlled pre–post study** with two parallel arms:

- **Control (n=40):** Baseline and 12-week post-test; no intervention.
- **Experimental (n=40):** Baseline, 12-week post-test after IYN program.

This design isolates the effect of IYN while controlling for temporal/measurement effects. The analytic plan prespecified **paired t-tests** within groups and **independent t-tests** between groups (post-test), with **two-tailed  $\alpha=0.05$**  and 95% confidence intervals (CIs).

### 3.2. Setting and participants

Government bank branches in **Jodhpur, India**. **Sample size (N=80)** was determined a priori for medium–large effects (power $\approx 0.90$  for  $d \geq 0.7$  at  $\alpha=0.05$ ). Employees aged 21–58 years, in service  $\geq 1$  year, and consenting were eligible; exclusion criteria: current severe psychiatric illness, unstable medical conditions, or concurrent structured mind–body programs.

### 3.3. Sampling and randomization

Stratified random sampling by branch and role (clerical/officer) ensured balance on occupational status, followed by computer-generated 1:1 allocation (sealed opaque envelopes). Control variables anticipated: age, gender, occupational status, baseline stress, lifestyle.

### 3.4. Problem statement, aim, and hypotheses

- **Problem:** High occupational stress and suboptimal job satisfaction among government bank employees compromise individual well-being and service quality.
- **Aim:** To test whether a 12-week IYN program reduces stress and improves job satisfaction versus control.
- **Hypotheses:**
  - H1: IYN will **reduce stress** (PSSI–SSS) from pre to post more than control.
  - H2: IYN will **increase job satisfaction** (JSST–DM) from pre to post more than control.
  - H3: Post-intervention **between-group differences** will favour IYN on both outcomes.

### 3.5. Intervention (Integrated Yoga & Naturopathy; 12 weeks)

**Schedule (90 days):** Three offline sessions (Mon/Wed/Sat) and two online sessions (Fri/Sun) weekly, led by the research scholar (certified yoga instructor). Each session  $\approx 60$  minutes.

#### Components (Independent Variables):

- SukṣmaVyāyāma* (joint mobilizations; 10–12 min)
- SūryaNamaskāra* (6–8 rounds, graded)
- Yoga āsanas** (10 postures; e.g., Tādāsana, Vīrabhadrāsana II, Trikoṇāsana, Bhujangāsana, Śalabhāsana, SetuBandhāsana, Paścimottānāsana, ArdhaMatsyendrāsana, Bālāsana, Śavāsana; 20–25 min)
- NāḍīŚodhana** (alternate-nostril breathing; 8–12 min)
- Meditation** (breath-awareness; 8–10 min)

- F. **Dietary therapy** (*Sāttvic* diet guidance; weekly menu handouts; hydration)
- G. **Weekly fasting** (once/week, individualized, medically screened)
- H. **Hydrotherapy** (hot foot bath, 15 min, 3×/week post-work)
- I. **Mud therapy** (abdomen and eye packs, 20 min, 3×/week at home)
- J. **Sunlight & nature exposure** (15–20 min morning walk in sunlight daily)

Rationales for hydrotherapy, mud therapy, and nature exposure derive from literature showing modulation of stress/anxiety and systemic relaxation/immune tone.

### 3.6. Outcomes and tools (Dependent Variables)

- 1. **Stress:** *Personal Stress Source Inventory (PSSI–SSS)* by A.K. Singh, A.K. Singh & A. Singh (35 items; adult norms; Hindi/English). The instrument has established field use in Indian populations and workplace studies.

## 4. Results

### 4.1. Stress (PSSI–SSS)

**Table 1.** Within-group changes in stress (control vs experimental)

Group	n	Pre, M±SD	Post, M±SD	Change (Δ)	% Change	t (df=39)	p	95% CI of Δ	Effect size (Cohen’s dz)
Control	40	67.2 ± 12.5	65.1 ± 12.8	2.1	–3.1%	1.36	0.18	–1.03, 5.23	0.21
Experimental	40	66.8 ± 12.0	48.4 ± 11.2	18.4	–27.5%	11.08	<0.001	15.04, 21.76	1.75

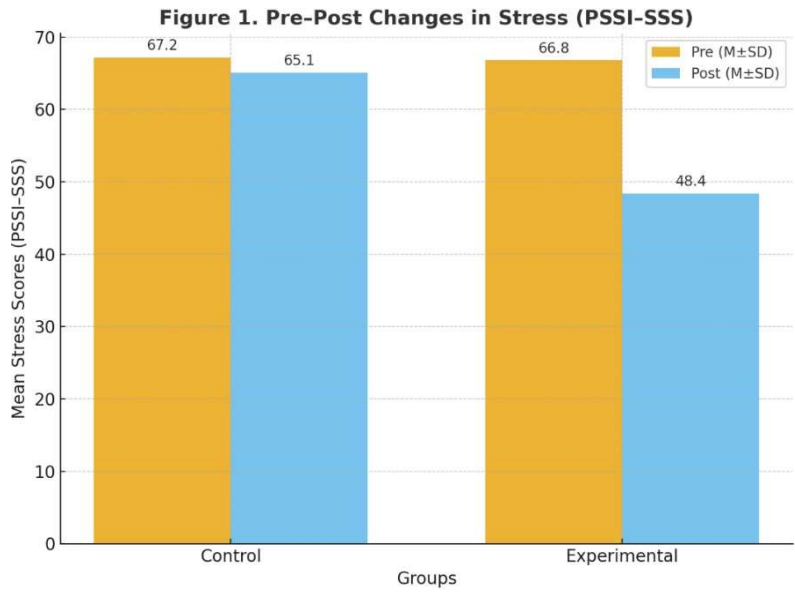
- 2. **Job satisfaction:** *Job Satisfaction Scale (JSST–DM)* by Meera Dixit (~52–58 items across intrinsic/extrinsic facets), widely used in organizational research with high reported test–retest reliability (~0.90).

**Rationale:** Both instruments are validated, culturally relevant, economical, and feasible for group administration in Hindi/English—enabling sensitive detection of change in Indian workplaces.

### 3.7. Data collection and analysis

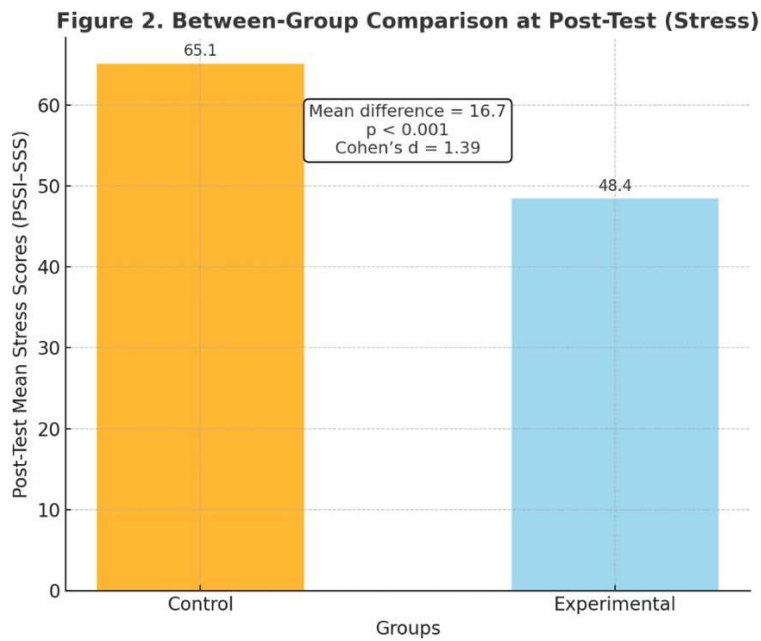
Baseline and 12-week post-intervention assessments were supervised in-branch (paper-and-pencil) with blinded scoring. SPSS (v.27) computed descriptive and inferential statistics.

- **Within groups:** Paired t-tests (pre vs post); effects as **Cohen’s dz**; 95% CIs; p-values (two-tailed).
- **Between groups:** Independent t-tests (post scores); effects as **Cohen’s d**; 95% CIs.
- Missing data (≤5%) handled by pairwise deletion.



**Table 2.** Between-group comparison at post-test (stress)

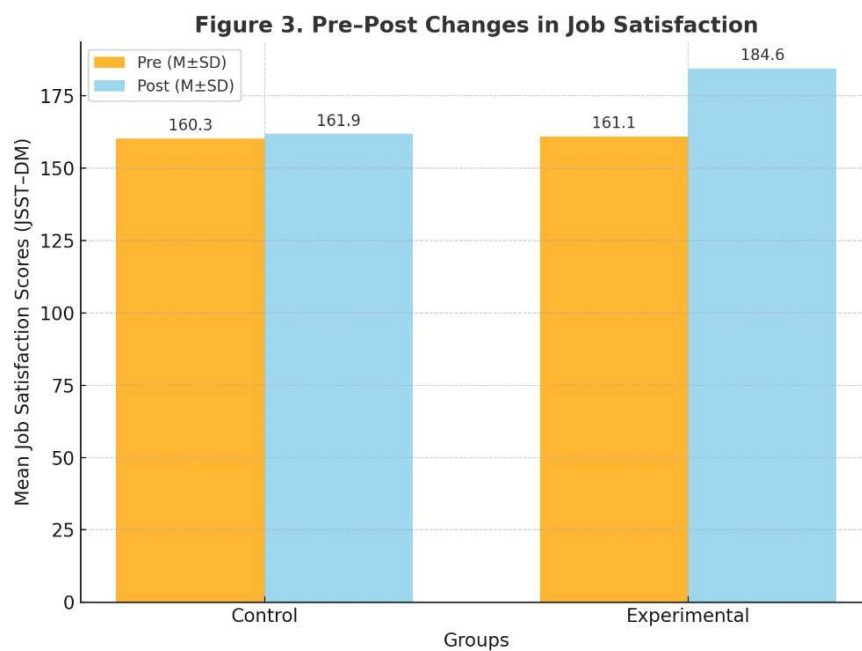
Comparison	n (per group)	Post means (Ctrl vsExp)	Mean difference	t (df=78)	p	95% CI	Effect size (Cohen's d)
Control vs Experimental	40 / 40	65.1 vs 48.4	16.7	6.21	<0.001	11.32, 22.08	1.39



## 4.2. Job Satisfaction (JSST-DM)

**Table 3.** Within-group changes in job satisfaction

Group	n	Pre, M±SD	Post, M±SD	Change (Δ)	% Change	t (df=39)	p	95% CI of Δ	Effect size (Cohen's dz)
Control	40	160.3 ± 21.5	161.9 ± 21.0	1.6	+1.0%	1.19	0.24	-1.12, 4.32	0.19
Experimental	40	161.1 ± 20.5	184.6 ± 18.7	23.5	+14.6%	<b>12.39</b>	<b>&lt;0.001</b>	<b>19.66, 27.34</b>	<b>1.96</b>

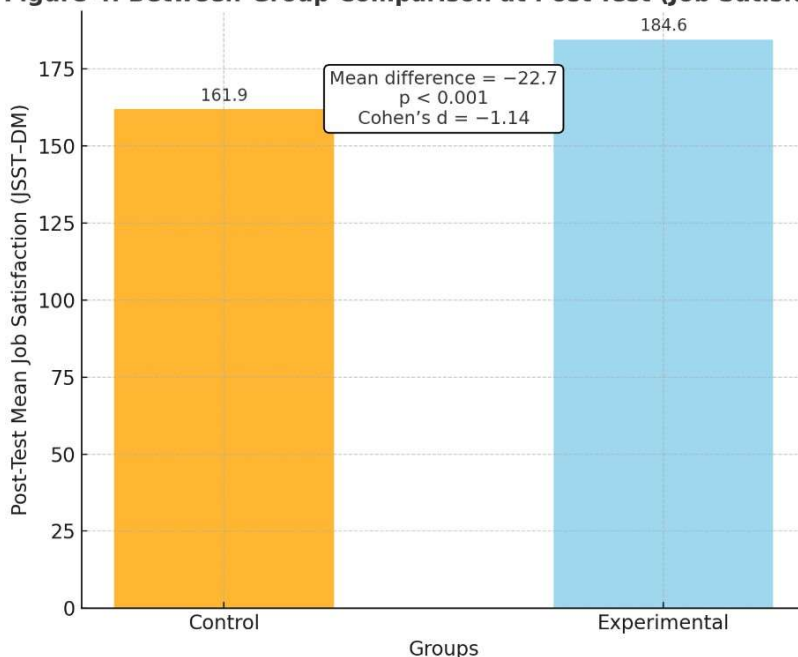


**Table 4.** Between-group comparison at post-test (job satisfaction)

Comparison	n (per group)	Post means (Ctrl vsExp)	Mean difference	t (df=78)	p	95% CI	Effect size (Cohen's d)

Comparison	n (per group)	Post means (Ctrl vsExp)	Mean difference	t (df=78)	p	95% CI	Effect size (Cohen's d)
Control vs Experimental	40 / 40	161.9 vs 184.6	-22.7	-5.11	<0.001	-31.60, -13.80	-1.14

**Figure 4. Between-Group Comparison at Post-Test (Job Satisfaction)**



## 5. Discussion

### 5.1. Principal findings

A 12-week integrated yoga–naturopathy program resulted in large, clinically meaningful reductions in stress (−27.5%) and improvements in job satisfaction (+14.6%) among government bank employees, with negligible changes in the control group. Between-group post-test effects were large ( $|d| \approx 1.1–1.4$ ), supporting the program’s efficacy.

### 5.2. Comparison with prior work

Our results align with workplace yoga trials that demonstrate reductions in fatigue, burnout, and pain alongside improved vitality and well-being. The stress reduction observed here mirrors

benefits reported in occupational cohorts and short residential programs, indicating both rapid and sustained psychophysiological effects of yoga. The inclusion of **naturopathy** elements (hot foot bath, mud packs, sunlight exposure) plausibly augmented relaxation responses. Evidence suggests hydrotherapy/balneotherapy reduces anxiety/depressive symptoms and modulates inflammatory mediators—mechanistic pathways relevant to stress and affect.

From a yogic standpoint, stress arises when rajas (restlessness) and tamas (inertia) dominate the mind, disturbing the equilibrium of sattva (clarity). Regular practice of āsana, prāṇāyāma, and meditation restores this balance by harmonizing prāṇa and quieting the

fluctuations of citta as described in Patañjali Yoga Sūtra (I.2). Physiologically, these practices activate the parasympathetic nervous system, lower cortisol and catecholamine levels, and improve vagal tone, which collectively mitigate perceived stress and enhance emotional regulation. The naturopathy components, particularly hydrotherapy and sun exposure, complement this by improving peripheral circulation, serotonin synthesis, and thermoregulatory relaxation. Together, the IYN protocol aligns the yogic goal of śarīra–mana–prāṇa integration with measurable neuroendocrine mechanisms that underpin improved well-being and job satisfaction (Telles et al., 2023; Sharma & Haider, 2023).

### 5.3. Working professionals, quality of life, and banking context

Banking roles, characterized by high cognitive load and customer interaction, are vulnerable to stress-related decrements in quality of life and job satisfaction. The magnitude of gains here is notable given the hybrid delivery compatible with banking schedules. Prior Indian public sector evidence linking stress with poorer QOL underscores the relevance of scalable mind–body programs in this sector.

### 5.4. Implications for organizations

From an implementation lens, the IYN protocol is low-cost, requires minimal equipment (mats, hot foot bath set-ups, clay/mud packs), and can be embedded into weekly rosters (three short in-person and two brief online touchpoints). Given large effect sizes and feasibility demonstrated in related workplace programs, organizations may anticipate downstream benefits (productivity, engagement, reduced absenteeism) mediated by improved job satisfaction and reduced stress.

### 5.5. Cultural and global context

Yoga and naturopathy possess high cultural fit in India and increasing global uptake. Hybrid, evidence-informed protocols that respect occupational constraints could be adapted for other government services, call centers, and financial services internationally, where psychosocial demands are comparable.

### 6. Limitations

1. The study's relatively small sample (N=80) and single-city scope may limit external validity. Although large effect sizes (Cohen's  $d = 1.1–1.4$ ) suggest robust treatment efficacy, replication across larger and more diverse occupational settings is warranted to confirm generalizability and sustainability.
2. **Single-city sample:** Findings from Jodhpur government banks may not generalize to private banking or other regions.
3. **Self-report instruments:** Although validated, outcomes may reflect response biases.
4. **Unblinded participants:** Expectancy effects cannot be fully excluded.
5. **Component attribution:** The integrated design precludes isolating effects of individual modalities (e.g., mud therapy vs pranayama).
6. **Short follow-up:** We did not assess durability beyond 12 weeks.

### 7. Conclusion

**Summary:** A 12-week integrated Yoga and Naturopathy program delivered in a pragmatic hybrid format produced **large reductions in stress and substantial gains in job satisfaction** among government bank employees, with strong between-group effects.

**Implications and future research:** Given low cost and high acceptability, banks and public agencies can scale IYN as part of occupational health. Future multicenter RCTs with longer follow-up, mechanistic biomarkers (e.g., inflammatory markers,

HRV), and dismantling designs (yoga-only vs IYN) can refine dose–response and component efficacy while informing policy guidelines for workplace mental well-being.

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