



Role of Physical Activity, Yoga and Meditation in Promoting Holistic Well-Being among Working Professional Students: A Narrative Review

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ABSTRACT

Working professional students combine full-time employment with formal study and therefore face the additive demands of occupational stress, academic pressure and personal responsibilities. This narrative review synthesises contemporary evidence on how physical activity, yoga and meditation or mindfulness contribute to holistic well-being in this group, proposes a five-dimensional framework for interpreting that evidence, and identifies research gaps. Peer-reviewed literature published between 2004 and 2026 was identified through searches of six databases and citation chaining, and 62 sources were synthesised thematically. Physical activity is associated with better mood, sleep and self-efficacy, although no optimal dose has been confirmed and 80% of the mediating evidence is observational. Yoga reduced short-term stress against passive controls (SMD = -0.69, 95% CI -1.12 to -0.25), but the evidence was graded low quality. Workplace mindfulness and

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meditation programmes showed small-to-moderate benefits for perceived stress, distress, job stress and anxiety (approximately $g = -0.38$ to -0.53) and reduced emotional exhaustion, although studies were limited by heterogeneity, small samples, self-selection and short follow-up. Evidence specific to the dual-role learner is almost entirely observational and links work–life imbalance with perceived stress, lower quality of life and burnout risk. A multi-modal, low-threshold, institutionally supported approach, positioning activity as recovery rather than as an additional obligation, appears the most pragmatic option. Rigorous trials in this population are needed; until then, such programmes should be treated as evidence-informed but unverified.

1. Introduction

1.1 Background

The past two decades have witnessed a substantial expansion of part-time, executive, distance and continuing-education programmes in which employed adults pursue formal academic qualifications while remaining in full-time or near-full-time work. Corporate learning and development functions, professional bodies with mandatory continuing education requirements, and universities operating evening, weekend and online provision have collectively normalised the idea that career progression and formal study can and should proceed in parallel. The consequence is a substantial and growing segment of the higher-education population whose defining characteristic is not their age or their subject but their structural position: they are simultaneously workers and students in a way that leaves neither role fully subordinate to the other.

This review examines the well-being implications of this dual-role position and considers whether three accessible practices—physical activity, yoga and meditation/mindfulness—may support working professional students. The available evidence is interpreted cautiously because much of it comes from employees, full-time university students and stressed adults rather than from working professional students specifically.

1.2 The Working Professional Student as a Distinct Population

The literature on employed learners demonstrates that the intersection of work, study and personal life generates a distinctive stress profile. The most commonly reported features are time pressure and a



persistent sense of insufficiency; role conflict, in which the demands of one role intrude on the performance of another; boundary blurring, in which work communication seeps into study hours and study obligations into family time; guilt about neglected roles; and depleted recovery opportunities, because the hours that would ordinarily be used for rest are redirected towards either work or study [Lowe & Gayle, 2007; Jogaratnam & Buchanan, 2004].

Studies of part-time postgraduate cohorts have consistently identified work–life imbalance as a robust predictor of perceived stress, with implications for both academic persistence and psychological health. Research on part-time students has found a negative association between work–life balance and perceived stress, with the authors calling on higher-education frameworks to address the structural conditions that produce the imbalance rather than treating it as an individual failing [Abdilah et al., 2025]. Comparable findings have been documented among part-time MBA students in private higher education [Dolapihilla, 2020] and among employees studying part-time, for whom work–life balance was related to quality of life and for whom poorly balanced schedules were linked to stress and burnout [Jaya et al., 2026]. The pattern is remarkably consistent across national contexts, which suggests that it reflects the structural features of the dual role rather than any particular institutional arrangement.

This dual-role load matters for well-being because chronic exposure to competing demands activates sustained physiological stress responses and erodes precisely the psychological resources — energy, self-efficacy, concentration, positive affect — on which both workplace performance and academic learning depend. Reviews of health and well-being at work confirm that well-being is not merely the absence of strain but a multi-dimensional resource that reciprocally shapes performance, engagement and health behaviour [Sonnentag et al., 2023]. The job demands–resources model formalises this relationship: chronic demands produce exhaustion through a health-impairment process, while available resources sustain engagement through a motivational process, and the two processes operate simultaneously and reciprocally [Demerouti et al., 2001; Schaufeli et al., 2009].

1.3 Rationale and Scope

Three considerations motivate the present review. First, prior reviews tend to be population-specific: physical activity reviews are typically conducted in workplace samples, yoga and mindfulness reviews in college students or clinical populations, and work–life balance reviews in management rather than health literature, so evidence relevant to working professional students is scattered across literatures that rarely cite one another. Second, reported outcomes are fragmented across physiological, psychological and functional



domains. Third, a holistic framework is needed to relate these outcomes and to interpret mechanisms that are plausibly complementary rather than redundant.

The scope of the review is deliberately broad in population — it draws on evidence from employees, university students and stressed adults in the general population — and deliberately narrow in intervention, covering only physical activity, yoga and meditation/mindfulness. The rationale for the broad population base is that dedicated trials in working professional students are extremely rare, so that restricting the review to that population would yield almost no eligible studies. The rationale for the narrow intervention focus is that these three modalities constitute the most accessible and most intensively studied options available to a time-poor population.

1.4 Objectives

The review addresses four objectives:

1. To articulate a multidimensional conceptual framework of holistic well-being applicable to working professional students, grounded in established models of hedonic and eudaimonic well-being and in occupational health theory.
2. To synthesise the evidence on physical activity, yoga and meditation/mindfulness in relation to well-being outcomes relevant to this population, reporting effect sizes as published and qualifying the strength of evidence explicitly.
3. To identify the psychophysiological and psychosocial mechanisms that plausibly explain the observed effects and their complementarity.
4. To derive implications for institutions, educators, employers and practitioners, and to specify the research gaps that a subsequent empirical study should address.

2. Conceptual Framework of Holistic Well-Being

2.1 From Symptom Reduction to Holistic Functioning

A holistic conceptualisation treats well-being as an integrated state of functioning rather than the mere absence of illness or distress. This distinction is not merely semantic. Much of the intervention literature measures outcomes such as anxiety, depression or burnout, which are indices of dysfunction; improvement on these measures shows that an intervention has relieved strain, but it does not show that it has built the



resources on which sustainable functioning depends. For a population whose difficulties arise from structural overload rather than from clinical disorder, the distinction matters.

Two complementary traditions inform a holistic view. The hedonic tradition emphasises subjective experience — positive affect, life satisfaction and the balance of pleasant over unpleasant states — and is captured by instruments such as the WHO-5 Well-Being Index, a five-item self-report measure assessing positive mood, vitality and general interest over the preceding two weeks [World Health Organization, 2024]. The WHO-5 has been subjected to extensive psychometric evaluation, including a systematic review of the literature confirming its clinimetric validity and responsiveness [Topp et al., 2015], validation studies based on item response theory [Sischka et al., 2020], confirmatory factor analysis in occupational samples such as medical educators [Chan et al., 2022], and cross-national validation in health-worker populations across ten sub-Saharan African countries [Lohmann & Cromhout, 2026]. Its brevity and responsiveness make it well suited to repeated measurement in applied studies of working professionals.

The eudaimonic tradition emphasises functioning, meaning and growth. Ryff's multidimensional model identifies autonomy, environmental mastery, personal growth, positive relations with others, purpose in life and self-acceptance as the core constituents of psychological well-being. Seligman's PERMA model similarly specifies positive emotion, engagement, relationships, meaning and accomplishment. Both models have been applied empirically in university and workplace settings. A study of a university workplace reported that PERMA constructs captured well-being in ways that bore directly on organisational practice, concluding that integrating PERMA-based measures could support institutional well-being strategy [Ng et al., 2025]. A review of student well-being in positive higher education similarly treated well-being as a holistic construct influenced by institutional, social and personal factors, and identified the PERMA model as a widely applied framework in educational settings [Li, 2025].

2.2 Dimensions of Holistic Well-Being

Synthesising these traditions with occupational health models and with the practice literature, five interdependent dimensions can be specified.

Physical well-being encompasses cardiovascular and metabolic health, musculoskeletal function, sleep quality, energy and the absence of somatic complaints. Organised physical activity is the most direct lever on this dimension, with downstream effects on mood and cognition.



Mental and emotional well-being encompasses perceived stress, anxiety, depressive symptoms, emotional exhaustion, positive affect and emotion regulation. Yoga and meditation target this dimension most directly and have the largest measured effects here.

Social well-being encompasses perceived support, belonging, the quality of relationships and social connection. Group-based yoga and exercise classes, and workplace mindfulness cohorts, are not merely delivery vehicles for a technique; they are settings in which the social dimension of well-being is generated, which is particularly relevant to learners whose study mode is solitary or remote.

Occupational and academic well-being encompasses engagement, productivity, job and study satisfaction, concentration, self-efficacy and academic achievement, together with the absence of burnout. This dimension is the point at which the two halves of the dual role converge, and it is where the practical case for intervention is strongest.

Spiritual and existential well-being encompasses meaning, purpose, values congruence and the capacity for reflective detachment from immediate pressures. Contemplative practices are traditionally oriented towards this dimension, though it is the least frequently measured in contemporary intervention research — a gap that is itself worth noting.

These dimensions are not independent. The job demands–resources model predicts that personal resources such as self-efficacy, optimism and resilience, together with job and study resources, buffer the impact of demands on exhaustion, while chronic demands deplete resources in a self-reinforcing loss spiral [Schaufeli et al., 2009; Van den Broeck et al., 2017]. Physical activity, yoga and meditation can each be understood as resource-generating behaviours that interrupt this spiral, which explains why a single modality may simultaneously improve physiological markers, psychological outcomes and functional performance. The model also has practical implications: it suggests that interventions should be evaluated on both the energy-depletion axis (exhaustion, fatigue, distress) and the motivational axis (engagement, efficacy, accomplishment), since a programme that reduces exhaustion without building engagement has addressed only half the problem [Schaufeli, 2017]. Figure 1 summarises the proposed relationships; these pathways should be interpreted as a conceptual synthesis rather than proof of causation.

Conceptual framework for working professional students

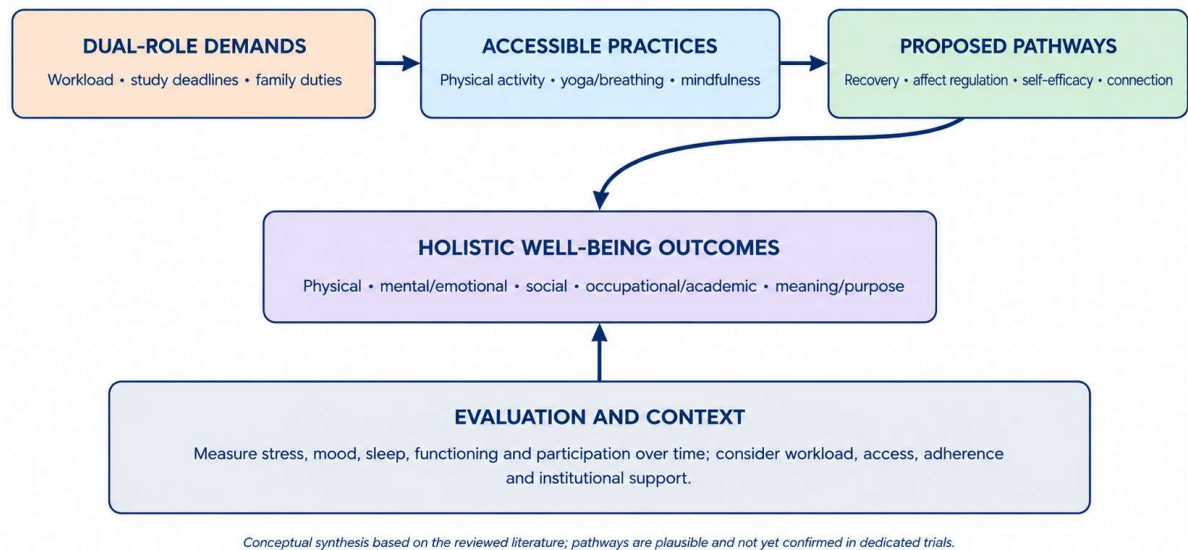


Figure 1. Conceptual framework linking dual-role demands, accessible practices, proposed pathways and multidimensional well-being.

2.3 Motivational and Self-Determination Perspectives

Self-determination theory offers a complementary account of why these practices may be sustained or abandoned. The theory holds that volitional engagement and psychological wellness depend on the satisfaction of three basic psychological needs — autonomy, competence and relatedness — and that meeting these needs results in better physical and mental health, higher productivity and greater overall well-being [Ryan & Deci, 2017]. A well-being programme imposed as a mandatory institutional requirement may satisfy none of the three needs; a programme that offers genuine choice of modality (autonomy), is pitched at a level the participant can master (competence) and is undertaken with peers or colleagues (relatedness) is more likely to be internalised and therefore sustained through the periods of peak demand when it is most needed. The theory thus provides a rationale for the flexible, multi-modal, socially embedded formats recommended in Section 12.

2.4 Why the Working Professional Student Is a Distinct Case

The dual-role learner faces three amplifiers of stress that are less prominent in single-role students or employees.



Time scarcity. Study commitments are added to a full working week rather than substituting for it, compressing the available recovery time. Where a full-time student might reallocate leisure hours, the working professional student must find additional hours or sacrifice sleep. This has a direct consequence for intervention design: any programme that adds a further scheduled obligation competes with recovery rather than supporting it.

Role conflict and boundary blurring. Work communication intrudes into study hours and academic obligations intrude into family and work time. The identity of learner may also feel illegitimate in a professional context, particularly for mid-career and senior participants who are accustomed to expertise rather than to being assessed.

Evaluation stacking. Performance appraisal and academic assessment can coincide, producing periods of compounded evaluative threat during which both roles simultaneously demand demonstrable performance.

Any intervention intended for this group must therefore be time-efficient, low-cost, resilient to schedule disruption, and oriented towards recovery and resource building rather than towards the addition of a further obligation. These requirements inform every practical recommendation that follows.

2.5 The Contribution of the Present Framework

Established well-being models each illuminate part of the dual-role learner's condition, but none was designed for it. The WHO-5 is a brief hedonic screen, Ryff's model contains no occupational or physiological component, and PERMA does not distinguish the exhaustion and engagement processes that the job demands–resources model treats as separate axes [Ng et al., 2025; Li, 2025; Schaufeli et al., 2009; World Health Organization, 2024]. The five-dimensional framework in Section 2.2 therefore names occupational–academic well-being as a dimension in its own right, retains the spiritual–existential dimension, links each dimension to mediators with graded evidential support [White et al., 2024], and is weighted by the three amplifiers of the dual role described in Section 2.4. It is offered as a synthesis-and-design tool for future empirical work in this population, not as a competing theory of well-being.

3. Review Methodology

3.1 Review Design

This is a narrative (non-systematic) review with an explicit, documented search strategy. A systematic review was not appropriate because the population of interest, working professional students, is served by very few dedicated intervention trials. A narrative design permits evidence from adjacent populations

(employees, university students and stressed adults) to be integrated within a coherent conceptual framework while remaining transparent about the limits of that inferential step. To limit selective citation, the databases, search strings, date range and eligibility criteria are documented below and in Appendix A.

3.2 Databases and Search Terms

Searches were conducted in Medline/PubMed, Scopus, PsycINFO, Web of Science, the Cochrane Library and Google Scholar, supplemented by citation chaining from retrieved reviews and by hand-searching of reference lists. Search strings combined an intervention block, an outcome block and a population block using Boolean operators; the full strings are given in Appendix A.

Terms were combined within blocks with OR and across blocks with AND. Searches were run without language or methodological filters beyond those specified in Section 3.3, so that reviews, trials and observational studies would all be retrieved.

3.3 Eligibility Criteria

Inclusion criteria were: (i) peer-reviewed empirical studies, including randomised controlled trials, quasi-experimental studies, cohort studies and cross-sectional studies, and peer-reviewed systematic reviews or meta-analyses; (ii) adult participants, with priority given to employed adults, university and postgraduate students, and adult learners; (iii) at least one intervention or exposure consisting of physical activity, yoga or meditation/mindfulness; (iv) at least one well-being-relevant outcome, whether psychological, physiological or functional; (v) publication in English between 2004 and 2026. Conceptual and theoretical papers were included where they supplied the well-being framework or the occupational health model used in the synthesis, irrespective of publication date.

Exclusion criteria were: paediatric and adolescent-only samples; studies of clinical conditions in which the intervention was delivered as disease-specific therapy without well-being outcomes; single case reports; editorials and non-peer-reviewed commentary; and dissertations or theses, except where they addressed the dual-role learner population directly and no peer-reviewed equivalent was available.

3.4 Study Selection, Data Extraction and Synthesis

Titles and abstracts of retrieved records were screened against the eligibility criteria, and the full texts of potentially eligible records were assessed against the same criteria. Data extracted from each retained source comprised the study design, sample size and characteristics, the intervention or exposure (modality, dose,

duration, delivery format), the comparison condition, the outcome measures and the reported results, including effect sizes and confidence intervals where available.

Consistent with the narrative design, no formal risk-of-bias scoring instrument was applied and no meta-analytic pooling was undertaken. Instead, methodological quality is reported descriptively where the source publications or reviews provide it — for example, the proportion of included studies rated high, medium or low quality, or the reported I^2 statistic for statistical heterogeneity. Findings were organised thematically by modality (Sections 4 to 6), then integrated in a cross-cutting synthesis table (Section 9) and a mechanistic account (Section 10).

3.5 Evidence Base

Sixty-two sources were retained and synthesised, comprising randomised controlled trials, quasi-experimental studies, cohort and cross-sectional studies, systematic reviews and meta-analyses, and conceptual or framework papers. Approximately one-third of the retained sources are quantitative syntheses, which supply the pooled effect-size estimates and certainty-of-evidence judgements reported below; the remainder provide population-specific context, mechanistic reasoning and measurement frameworks. Throughout the review, effect sizes and sample characteristics are reported exactly as they appear in the source publications, and the strength of evidence is qualified explicitly rather than assumed.

4. Physical Activity and Holistic Well-Being

4.1 Evidence from Workplace Settings

Across the occupational literature, workplace physical-activity interventions are associated with improvements in well-being, although the size and consistency of effects vary by study design, intervention and outcome. A narrative review of physical activity and workplace well-being examined the effects on stress, productivity and health simultaneously and concluded that a principal target of such interventions is burnout, understood as an occupational stress syndrome arising from chronic emotional and interpersonal stressors at work [Rossi et al., 2025]. This framing is important because it positions physical activity not merely as a leisure pursuit with incidental health benefits but as an occupational health intervention directed at a recognised syndrome.

A systematic review of physical activity interventions specifically in office-based workplace settings reported improvements in well-being across the included studies and drew out the practical implications for employers, policymakers and health professionals [Abdin et al., 2018]. An umbrella review of workplace

health promotion interventions found that programmes targeting physical activity produced a small positive effect on psychological well-being, while confirming that effects on other outcomes, including some physiological endpoints, were more mixed [Proper & van Oostrom, 2019]. An earlier meta-analysis of workplace physical activity interventions reached a comparable conclusion — that some programmes improve both health and important worksite outcomes — while cautioning that programme design and participant adherence moderate the results substantially [Conn et al., 2009]. Taken together, these syntheses support a moderate and credible effect on well-being, with the caveat that programme characteristics rather than the modality itself determine whether the effect materialises.

4.2 Hedonic and Eudaimonic Outcomes in Adult Samples

At the level of subjective experience, a meta-analysis of leisure-time physical activity and subjective well-being found a positive association across studies and, importantly, proposed a mechanism: activity undertaken during leisure may supply a cognitive respite from work-related stress [Wiese et al., 2018]. This is directly relevant to dual-role learners, for whom the scarcity of recovery time is the defining constraint. The finding implies that the well-being benefit of activity may derive as much from the psychological detachment it affords as from its physiological effects.

Complementing this, a latent profile analysis of employees found that physical activity differentiated occupational stress and mental-health profiles, leading the authors to argue that activity should be treated as a target variable in occupational settings precisely in order to avoid the downward spirals associated with high occupational stress [Gerber et al., 2014]. The practical implication is that at-risk employees are identifiable and that activity promotion can be targeted rather than universal, which is useful for institutions with limited resources.

4.3 Mechanisms of the Activity–Well-Being Relationship

The most comprehensive recent synthesis on this question examined mediators and moderators of the physical activity–mental health relationship across 247 studies. Twelve mediators were supported by strong evidence — affect, mental health and well-being, self-esteem, self-efficacy, physical self-worth, body image satisfaction, resilience, social support, social connection, physical health, pain and fatigue — with a further fifteen supported by moderate evidence, and eight moderators were identified. Notably, the review could not confirm an optimal dose of activity in terms of frequency, duration or intensity for mental-health benefit, and cautioned that 80% of the included studies were observational rather than experimental [White et al.,



2024]. This is the central caveat for the physical activity literature: the mechanistic story is credible and multi-pathway, but both the causal evidence and the dose–response question remain unresolved.

The mediators identified are instructive for the present review because they map closely onto the dimensions of holistic well-being set out in Section 2.2. Self-efficacy, self-esteem and physical self-worth correspond to the eudaimonic constructs of mastery and self-acceptance. Social support and social connection correspond to the social dimension. Affect corresponds to the hedonic dimension. Physical health, pain and fatigue correspond to the physical dimension. The mechanism literature therefore provides empirical support for treating well-being holistically rather than as a single outcome.

4.4 Physical Activity and Academic Functioning

Among university students, the evidence for functional benefits is expanding. A meta-analysis of physical exercise interventions found benefits for mental-health status in student samples [Liu et al., 2025], and a systematic review reported that exercise reduced stress with a moderate-to-large magnitude in this population [Malagodi et al., 2025]. Cross-sectional and longitudinal evidence indicates that physically active students report lower academic stress and fewer anxious and depressive symptoms than their less active peers [Martín-Rodríguez et al., 2026].

There is also evidence that physical activity relates to academic achievement, both directly and indirectly, suggesting a route through which activity may support the academic half of the dual role as well as the occupational half [Jiang et al., 2025]. In relation to the anxiety–performance link specifically, current findings indicate that physical activity interventions may reduce anxiety and potentially enhance academic performance in university students [Vinueza-Fernández et al., 2025]. Taken together, this body of work suggests that the benefits of activity for a working professional student are not confined to feeling better but extend to performing better in both roles — although the evidence for the achievement pathway is weaker than that for the mood pathway and should be treated as suggestive.

5. Yoga: Postures, Breath and Well-Being

5.1 Meta-Analytic Evidence on Stress

The most directly relevant quantitative synthesis examined yoga for stress in stressed adults and included 13 randomised controlled trials with 1,026 participants. Yoga outperformed passive control groups for short-term stress reduction with a standardised mean difference of -0.69 (95% CI -1.12 to -0.25), and showed a small statistically significant advantage over active controls at longer-term follow-up (SMD = 0.23 , 95% CI

0.06 to 0.40). Short-term effects against active controls were not statistically significant (SMD = 0.27, 95% CI -1.31 to 1.85; only two trials contributed to this comparison). The authors concluded that yoga is a viable non-pharmacological treatment option for stress but graded the evidence as low quality, citing substantial statistical heterogeneity ($I^2 = 60\%$), a high risk of bias regarding outcome assessment, an over-representation of female participants (median 91.5%) and geographical clustering of trials [Schleiner et al., 2024].

This pattern — a promising pooled effect accompanied by weak certainty — characterises the yoga literature as a whole and should temper enthusiasm without dismissing the practice. The comparison structure also matters for interpretation: the large effect against passive controls indicates that yoga is better than doing nothing, whereas the modest and sometimes non-significant effect against active controls indicates that a substantial part of the benefit may derive from non-specific factors such as attention, social contact, relaxation and expectancy rather than from postural practice per se.

5.2 Yoga in Student Samples

In a randomised controlled trial with 129 university students, a 12-week yoga programme delivered twice weekly (24 sessions of 60 minutes) produced significant improvements relative to a no-intervention control in perceived stress (Cohen's $d = 0.44$), emotional well-being ($d = 0.47$), state anxiety ($d = 0.38$) and trait anxiety ($d = 0.80$) [Castellote-Caballero et al., 2024]. The large effect on trait anxiety is particularly noteworthy for a student population, because trait anxiety reflects a stable dispositional tendency rather than a transient state, and dispositional change is a stronger claim than state change.

A six-week yoga and meditation programme delivered to pharmacy and other college students likewise reduced stress and anxiety levels, demonstrating that meaningful effects can be obtained within a period compatible with a single academic term [Lemay et al., 2019]. More recently, a randomised trial examined whether yoga alters psycho-physiological states among first-year college students experiencing academic stress, addressing precisely the academic-stress interface that concerns the present review [Tripathi et al., 2025]. The concentration of student trials in the first-year transition period is worth noting: this is when academic stress is often highest and when study skills and coping strategies are least developed.

5.3 Yoga in Working-Adult Samples

Office-based yoga has been tested with physiological endpoints. A worksite-based yoga programme in full-time employees was evaluated in a randomised controlled trial of heart-rate variability, explicitly motivated by the adverse effects of cortisol in sedentary work contexts [Cheema et al., 2011], and the trial outcomes

for the same worksite programme were subsequently reported [Cheema et al., 2013]. The use of heart-rate variability as an outcome is methodologically valuable because it is an objective marker of autonomic balance that is not vulnerable to the expectancy and demand characteristics that inflate self-report measures.

A remote moderate-intensity yoga intervention for working adults was found to be feasible and to affect stress and executive functioning, which is notable because remote delivery removes the principal logistical barrier for people with saturated schedules [Phansikar et al., 2023]. Because the intervention also measured executive functioning — a cognitive domain central to both work performance and academic study — this study provides one of the few direct tests of whether yoga benefits the functional capacities that the dual role actually requires.

5.4 Yoga and Burnout in High-Demand Occupational Groups

A distinct body of evidence has tested yoga as an intervention for burnout, the outcome of greatest practical concern for working professionals. A randomised controlled trial in blue-collar workers reported benefits for fatigue, burnout, pain, strength and quality of life [Fogawat et al., 2024], and a waitlist-controlled trial compared a mobile-health-aided 12-week yoga-based meditation and breath intervention with no intervention for burnout and professional quality of life in health care providers [Bhardwaj et al., 2023]. Further studies have examined yoga for self-care and burnout prevention among nurses [Alexander et al., 2015], a 20-minute yoga module for burnout in health care workers [Upadhyay et al., 2025], and yoga for stress, stress adaptation and heart-rate variability among mental health professionals [Lin et al., 2015]. A CONSORT-compliant randomised controlled trial found that a six-week programme of yoga and mindful meditation reduced elderly care workers' burnout [Kukihara et al., 2022].

Two features of this cluster are especially relevant to the present review. First, the intervention durations are frequently short — six weeks, or a daily module of only 20 minutes — which suggests that meaningful effects on burnout may be obtainable at a dose compatible with a working professional's schedule. Second, the populations studied — nurses, physicians, mental health professionals, care workers — combine shift work, emotional labour and sustained cognitive load, conditions structurally similar to the compressed schedule of the dual-role learner. The transferability of these findings to working professional students is therefore plausible, though it remains untested.

5.5 Broader Occupational Syntheses Involving Yoga

A network meta-analysis of physical relaxation for occupational stress in health care workers ranked the effects of physically oriented interventions [Zhang et al., 2021], and syntheses of burnout interventions in

physicians and nurses and of individual-focused occupational health interventions suggest that person-directed approaches can produce modest effects [Zhang et al., 2020; Estevez Cores et al., 2021; West et al., 2016], which is consistent with the magnitude observed for yoga and mindfulness.

6. Meditation and Mindfulness-Based Programmes

6.1 General Evidence on Stress and Well-Being

Meditation programmes reduce negative dimensions of psychological stress, with mindfulness meditation programmes showing small effects on stress-related outcomes. The conclusion of the definitive meta-analysis is that meditation can reduce psychological stress, but that the magnitude of the benefit is modest and that the certainty of the evidence varies substantially according to the comparison condition — effects being larger against waitlist controls than against active comparators such as exercise or health education [Goyal et al., 2014]. This comparison-condition dependence is a recurring methodological theme across the contemplative literature and should be kept in view when interpreting any single effect size.

Among working adults specifically, an eight-week, three-arm randomised controlled trial of meditation for work stress, anxiety and depressed mood in full-time workers demonstrated reductions in all three outcomes, providing early high-quality evidence in an employed sample [Manocha et al., 2011]. Because the trial was conducted in full-time workers rather than students or clinical populations, its findings are directly informative for the occupational half of the dual role.

6.2 Workplace MBSR and Mindfulness-Based Programmes

The employee-focused evidence base has grown considerably over the past decade. A systematic review of MBSR in employees identified 24 articles describing 23 studies, of which 13 were randomised and 10 quasi-experimental, and concluded that MBSR may improve psychological functioning in employees. The outcomes with the strongest support were reduced emotional exhaustion — a core dimension of burnout — reduced stress, psychological distress, depression, anxiety and occupational stress, together with improvements in mindfulness, personal accomplishment, self-compassion, sleep quality and relaxation. Methodological quality was variable (two studies high, fifteen medium, six low), many intervention groups were small (10 to 24 participants), and self-selection bias and short follow-up were pervasive; the authors declined to pool results because of heterogeneity in outcomes and in the operationalisation of mindfulness, noting that more than 35 different outcome measures had been used across the included studies [Janssen et al., 2018].

A meta-analysis of randomised controlled trials of mindfulness-based programmes in the workplace provided quantitative confirmation, concluding that such programmes effectively promote the health and well-being of employees across diverse occupational settings [Vonderlin et al., 2020]. An earlier meta-analytic review of workplace mindfulness training randomised trials reached similar conclusions while emphasising the need for greater methodological rigour, and a separate meta-analysis specifically of physiological indices of stress examined whether the subjective benefits of workplace mindfulness meditation translate into measurable physiological change [Bartlett et al., 2019; Heckenberg et al., 2018]. A meta-regression analysis of randomised controlled trials of mindfulness training and employee well-being further examined which programme features moderated effectiveness, providing guidance on design choices such as session length, duration and delivery mode [Michaelsen et al., 2023]. Taken together, this body of work supports a small-to-moderate benefit for employee well-being, with the strongest and most consistent effects on stress and emotional exhaustion.

6.3 Recent Pooled Estimates

The most recent synthesis of meditation and workplace health reports improvements in perceived stress ($g = -0.51$), distress ($g = -0.49$), job stress ($g = -0.53$) and anxiety ($g = -0.38$) [Khanal et al., 2026]. These small-to-moderate pooled effects are consistent with earlier meta-analyses and delineate a realistic expectation for what meditation-based programmes can achieve. The convergence of independent syntheses on effects in the range of approximately one-third to one-half of a standard deviation is reassuring: it suggests that the true effect is neither negligible nor transformative, and that claims of dramatic benefit should be treated with scepticism.

6.4 Evidence from High-Demand Occupational Groups

Evidence from health care professionals is informative because these groups combine shift work, emotional labour and sustained cognitive load — conditions structurally similar to the dual-role learner's compressed schedule. A systematic review and meta-analysis of mindfulness-based interventions to reduce burnout and stress in physicians found significant benefits for both outcomes [Fendel et al., 2021]. A systematic review of MBSR for nurses' coping with work-related stress reached a comparable conclusion, and a pilot study of MBSR adapted to health care providers' working schedules during the COVID-19 pandemic demonstrated the feasibility of schedule-adapted delivery [Smith, 2014; Gan et al., 2024]. A cohort-controlled study of MBSR in health and social care education found effects on stress, physical distress and job burnout — a design that bridges the student and employee roles directly and is therefore among the closest analogues to the working professional student population available in the literature [Lo et al., 2021].

7. Integrative and Multi-Modal Perspectives

The three modalities are rarely compared head-to-head, but when they are, the pattern suggests complementary rather than competing mechanisms. The comparative trial of brain-wave vibration training, Iyengar yoga and mindfulness on mood, well-being and salivary cortisol is one such design, contrasting a movement-based practice, a postural practice and an attentional practice against each other [Bowden et al., 2012]. The yoga-versus-stretching comparison in PRYSMS isolates the non-postural components of yoga [Corey et al., 2014]. Where the literature does triangulate, the convergence is towards overlapping rather than redundant effects: all three modalities act on the stress-response system, all three appear to operate partly through attention and affect regulation, and physical activity and yoga add a somatic and cardiovascular pathway that meditation alone may not engage to the same degree.

A practical conclusion for population-specific programming is **feasibility through remote and low-time-cost delivery**. A remote moderate-intensity yoga intervention was shown to be feasible for working adults and improved stress and executive functioning [Phansikar et al., 2023]; an eight-week meditation programme was effective when delivered to full-time workers [Manocha et al., 2011]; and MBSR was successfully adapted to the working schedules of health care providers [Gan et al., 2024]. A 20-minute daily yoga module has been evaluated for burnout reduction in health care workers [Upadhyay et al., 2025], and a six-week combined yoga and meditation programme reduced burnout in care workers [Kukihara et al., 2022]. These examples suggest that effective dose need not be large.

8. The Dual-Role Burden: Work, Study and Life

Any claim about working professional students must be grounded in what is known about their stress profile, and here the evidence is consistent. The qualitative study of work/life/study balance among higher-education students established that balancing the three domains is a source of stress for many learners, and that full-time and part-time students face the complexity of combining work and family with study [Lowe & Gayle, 2007]. Research on employed hospitality students demonstrated that the demands of school and work interact, and that non-work life contributes to the stress experienced by employed students [Jogarathnam & Buchanan, 2004]. Contemporary work confirms the pattern: work–life balance is negatively associated with perceived stress among part-time students, with the authors calling on higher-education frameworks to address the issue structurally [Abdilah et al., 2025]; work–life balance issues among part-time MBA students in private higher education have been documented in detail [Dolapihilla, 2020]; and a study of employees studying part-time reported a relationship between work–life balance and quality of life, noting that poorly balanced schedules can result in stress and burnout [Jaya et al., 2026].

Two further observations follow from this literature. First, the problem is structural as much as individual: work–life imbalance arises from the arrangement of demands, so an intervention addressed only at the individual — however effective — cannot fully resolve it. Second, the outcome most consistently at risk is not clinical disorder but burnout and impaired quality of life, which are precisely the outcomes on which yoga and mindfulness programmes have shown their strongest effects in employed samples [Janssen et al., 2018; Fogawat et al., 2024; Kukihara et al., 2022]. This alignment between the population's principal risk and the interventions' strongest reported effect is the central practical argument of this review.

9. Synthesis of the Evidence

Table 1 summarises the principal studies on which the thematic findings rest, indicating design, sample, intervention and key outcomes. Effect sizes are reproduced as reported by the source. Figure 2 provides a high-level comparison of the modalities, while Table 1 retains study-level detail.

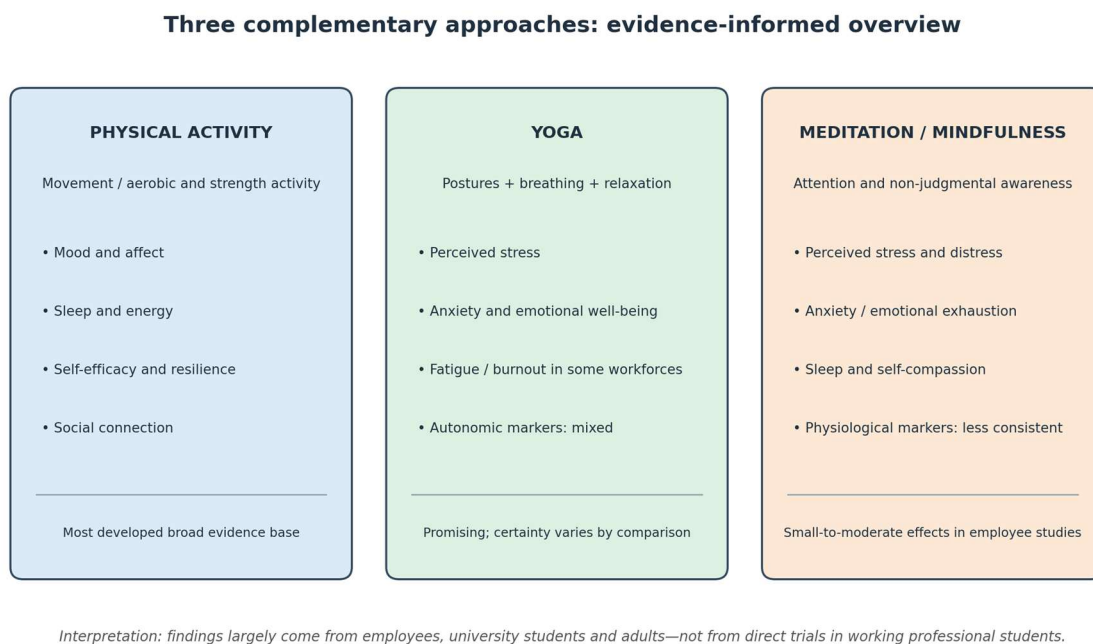


Figure 2. Evidence-informed overview of the three modalities and their commonly reported outcomes.

Table 1. Summary of the principal studies informing the review

Source	Design	Sample	Intervention	Key outcomes reported
Schleiner et al. (2024)	Systematic review and	13 RCTs; 1,026 stressed adults	Yoga (various styles)	Short-term stress vs passive control SMD = −0.69 (95%

	meta-analysis			CI -1.12 to -0.25); long-term vs active control SMD = 0.23 (0.06–0.40); low-quality evidence; I ² = 60%
Castellote-Caballero et al. (2024)	Randomised controlled trial	129 university students (65 yoga, 64 control)	12-week yoga, 2 × 60 min weekly (24 sessions)	Perceived stress d = 0.44; emotional well-being d = 0.47; state anxiety d = 0.38; trait anxiety d = 0.80
Lemay et al. (2019)	Pre-post intervention study	Pharmacy and other college students	6-week yoga and meditation programme	Significant reductions in perceived stress and anxiety
Tripathi et al. (2025)	Randomised trial	First-year college students	Yoga programme targeting academic stress	Changes in psycho-physiological stress states
Cheema et al. (2011, 2013)	Randomised controlled trial (protocol and outcomes)	Full-time office employees	Worksite yoga programme (asana, pranayama, meditation)	Heart-rate variability; autonomic and cortisol-related endpoints in sedentary workers
Phansikar et al. (2023)	Randomised controlled trial	Working adults	Remote moderate-intensity yoga	Feasible delivery; effects on stress and executive functioning
Bowden et al. (2012)	Comparative randomised controlled trial	Adults	Brain-wave vibration training vs Iyengar yoga vs mindfulness	Mood, well-being and salivary cortisol
Corey et al. (2014)	Randomised controlled trial (PRYSMS)	Adults with metabolic syndrome	Yoga vs stretching	Diurnal cortisol dynamics; psychosocial outcomes
Fogawat et al.	Randomised	Blue-collar	Workplace yoga	Fatigue, burnout, pain,



(2024)	controlled trial	workers	programme	strength and quality of life
Bhardwaj et al. (2023)	Randomised waitlist-controlled trial	Health care providers	mHealth-aided 12-week yoga-based meditation and breath intervention	Burnout and professional quality of life
Alexander et al. (2015)	Pilot randomised controlled trial	Nurses	Yoga for self-care and burnout prevention	Burnout and stress
Upadhyay et al. (2025)	Protocol with pilot results	Health care workers	20-minute daily yoga module	Burnout and stress reduction
Lin et al. (2015)	Randomised controlled trial	Mental health professionals	Yoga programme	Stress, stress adaptation and heart-rate variability
Kukihara et al. (2022)	CONSORT-compliant randomised controlled trial	Elderly care workers	Yoga and mindful meditation, 6 weeks	Burnout and stress reduction
Janssen et al. (2018)	Systematic review	24 articles; 23 studies (13 RCTs, 10 quasi-experimental)	MBSR in employees	Reduced emotional exhaustion, stress, distress, depression, anxiety, occupational stress; improved mindfulness, self-compassion, sleep, relaxation; quality: 2 high, 15 medium, 6 low
Vonderlin et al. (2020)	Meta-analysis of RCTs	Employees across occupational settings	Mindfulness-based programmes	Significant improvements in employee health and well-being
Bartlett et al. (2019)	Systematic review and meta-analysis	Workplace mindfulness training RCTs	Workplace mindfulness training	Reductions in employee stress; improved mental health and well-being

Heckenberg et al. (2018)	Systematic review and meta-analysis	Workplace meditation programmes	Workplace mindfulness meditation	Effects on physiological indices of stress
Michaelsen et al. (2023)	Meta-regression of RCTs	Employees	Mindfulness training	Employee well-being; moderators of effectiveness
Khanal et al. (2026)	Systematic review and meta-analysis	Working populations	Meditation	Perceived stress $g = -0.51$; distress $g = -0.49$; job stress $g = -0.53$; anxiety $g = -0.38$
Goyal et al. (2014)	Systematic review and meta-analysis	Adults	Meditation programmes	Reduced negative dimensions of psychological stress; small effects for mindfulness meditation
Manocha et al. (2011)	Randomised controlled trial (3-arm)	Full-time workers	8-week meditation (Sahaja Yoga)	Reductions in work stress, anxiety and depressed mood
Fendel et al. (2021)	Systematic review and meta-analysis	Physicians	Mindfulness-based interventions	Reduced burnout and stress
Smith (2014)	Systematic review	Nurses and health care professionals	MBSR	Improved coping with work-related stress; reduced burnout
Lo et al. (2021)	Cohort-controlled study	Health and social care students and professionals	MBSR	Effects on stress, physical distress and job burnout
Gan et al. (2024)	Pilot randomised study	Health care providers	Schedule-adapted MBSR	Feasibility; reduced burnout
Zhang et al. (2020)	Overview of systematic reviews and meta-analyses	Physicians and nurses	Interventions to reduce burnout	Comparative effectiveness of intervention types
Estevez Cores et	Meta-analysis of	Working adults	Individual-	Effects on stress and burnout



al. (2021)	RCTs		focused occupational health interventions	outcomes
West et al. (2016)	Systematic review and meta-analysis	Physicians	Interventions to prevent and reduce burnout	Pooled effects on burnout
White et al. (2024)	Systematic review (best-evidence synthesis)	247 studies; 81% adult samples	Physical activity	12 strong and 15 moderate mediators; 8 moderators; no confirmed optimal dose; 80% observational
Abdin et al. (2018)	Systematic review	Office-based workplace samples	Physical activity interventions	Improved well-being in office settings
Proper & van Oostrom (2019)	Systematic review of reviews	Working populations	Workplace health promotion	Small positive effect on psychological well-being
Conn et al. (2009)	Meta-analysis	Workplace samples	Workplace physical activity interventions	Improved health and worksite outcomes
Wiese et al. (2018)	Meta-analysis	Adults	Leisure-time physical activity	Positive association with subjective well-being; cognitive respite from work stress
Gerber et al. (2014)	Latent profile analysis	Employees	Physical activity (observational)	Activity differentiated occupational stress and mental-health profiles
Zhang et al. (2021)	Systematic review and network meta-analysis	Health care workers	Physical relaxation interventions	Ranked effects on occupational stress
Liu et al. (2025)	Meta-analysis	University	Physical	Improved mental-health



		students	exercise interventions	status
Malagodi et al. (2025)	Systematic review	University students	Physical activity and exercise	Moderate-to-large reductions in stress
Martín-Rodríguez et al. (2026)	Review of observational evidence	Students	Physical activity	Lower academic stress, anxiety and depressive symptoms
Jiang et al. (2025)	Empirical study	College students	Physical exercise	Direct and indirect promotion of academic achievement
Vinueza-Fernández et al. (2025)	Review of current findings	University students	Physical activity interventions	Reduced anxiety; potential enhancement of academic performance
Lowe & Gayle (2007)	Qualitative study	Higher-education students	None (work/life/study balance)	Balancing work, life and study generates stress; part-time learners face compounded complexity
Jogarathnam & Buchanan (2004)	Empirical study	Employed hospitality students	None	School and work demands interact; non-work life contributes to student stress
Abdilah et al. (2025)	Empirical study	Part-time students	None	Work–life balance negatively associated with perceived stress
Dolapihilla (2020)	Empirical study	Part-time MBA students	None	Work–life balance issues in private higher education
Jaya et al. (2026)	Empirical study	Employees studying part-time	None	Work–life balance related to quality of life; poor balance linked to stress and burnout
Sonnentag et al. (2023)	Conceptual review	Working populations	None	Well-being is more than stressors and strains; reciprocal links with performance
Demerouti et al.	Theoretical and	Working	None (JD-R)	Demands and control jointly

(2001)	empirical study	populations	model)	predict burnout and engagement
Schaufeli et al. (2009)	Longitudinal study	Telecom managers	None (JD-R model)	Changes in job demands and resources predict burnout, engagement and absenteeism
Van den Broeck et al. (2017)	Cross-sectional study	Multiple sectors	None (JD-R model)	Demands and resources relate to burnout and engagement across sectors
Schaufeli (2017)	Applied review	Working populations	None (JD-R measurement)	Guidance on measuring and tackling engagement and burnout
Ryan & Deci (2017)	Theoretical review	General populations	None (SDT)	Satisfaction of basic psychological needs predicts health, wellness and performance
Topp et al. (2015)	Systematic review	General and clinical populations	None (measurement)	WHO-5 clinimetric validity and responsiveness established
Sischka et al. (2020)	Psychometric study	General population	None (measurement)	WHO-5 validation based on item response theory
Chan et al. (2022)	Confirmatory factor analysis	Medical educators, Hong Kong	None (measurement)	WHO-5 factor structure supported in an occupational sample
Lohmann & Cromhout (2026)	Cross-national validation	Health workers, ten sub-Saharan African countries	None (measurement)	WHO-5 psychometric performance across countries
Ng et al. (2025)	Empirical study	University workplace	None (PERMA framework)	PERMA constructs capture well-being with organisational implications
Li (2025)	Conceptual review	Higher-education	None (positive education)	Student well-being as a holistic, multi-factor

		students		construct
Rossi et al. (2025)	Narrative review	Workplace populations	Physical activity	Effects on stress, productivity and health; burnout as key target
Rogerson et al. (2024)	Systematic review	Working populations	Stress management interventions	Mixed effects on cortisol outcomes

Note. Effect sizes are reproduced as reported by the source studies. CI = confidence interval; JD-R = job demands–resources; MBSR = mindfulness-based stress reduction; PERMA = positive emotion, engagement, relationships, meaning, accomplishment; RCT = randomised controlled trial; SDT = self-determination theory; SMD = standardised mean difference.

10. Mechanisms Linking the Three Modalities to Holistic Well-Being

Five mechanisms recur across the three literatures and plausibly account for the pattern of benefits observed. They are presented here as a working model rather than as a settled causal account, since the mediational evidence is largely observational [White et al., 2024].

10.1 Psychophysiological Regulation. Yoga has been proposed to act through regulation of the autonomic nervous system, endocrine function and inflammatory responses, with immediate effects on baroreflex sensitivity and heart-rate variability that reduce sympathetic activation and the release of stress hormones [Castellote-Caballero et al., 2024]. Trials measuring heart-rate variability in office employees [Cheema et al., 2011; Cheema et al., 2013], salivary cortisol in a comparative three-arm trial [Bowden et al., 2012] and diurnal cortisol against an active stretching comparator [Corey et al., 2014] test these pathways directly. The findings are directionally supportive but inconsistent in magnitude, in line with a small pooled effect of stress-management interventions on cortisol ($g = 0.282$) [Rogerson et al., 2024] and with the more modest and less consistent physiological than self-reported effects of workplace mindfulness [Heckenberg et al., 2018]. Physiological regulation is therefore a real but partial mechanism, and it does not by itself account for the observed psychological effects.

10.2 Self-Efficacy, Mastery and Resilience. Self-efficacy and resilience are among the mediators of the physical activity–mental health relationship supported by strong evidence, alongside physical self-worth, body image satisfaction and self-esteem [White et al., 2024]. These constructs map directly onto the environmental mastery and self-acceptance dimensions of eudaimonic well-being and onto the

accomplishment component of PERMA. They are also precisely the personal resources that the job demands–resources model identifies as buffers against exhaustion [Van den Broeck et al., 2017; Schaufeli, 2017]. For a dual-role learner, in whom demands are structurally high and external control over those demands is limited, personal resource accumulation through practice may be the most readily actionable lever available.

10.3 Affect and Recovery Through Detachment. Positive affect is a strong mediator of the activity–well-being link [White et al., 2024], and leisure-time activity may operate partly by providing a cognitive respite from work-related stress — that is, psychological detachment [Wiese et al., 2018]. For working professional students, whose recovery time is the scarcest resource, detachment may be the single most valuable mechanism, because it addresses the boundary-blurring problem identified in the work–life–study balance literature [Lowe & Gayle, 2007]. A practice that reliably interrupts rumination about work and study is doing something that a purely physiological account of exercise would not predict.

10.4 Social Connection and Belonging. Social support and social connection are strong mediators of the activity–mental health relationship [White et al., 2024], and self-determination theory identifies relatedness as one of three basic psychological needs whose satisfaction supports wellness [Ryan & Deci, 2017]. Group-based yoga and workplace mindfulness cohorts are therefore not merely delivery vehicles for a technique; they are settings in which the social dimension of holistic well-being is generated. This matters especially for learners whose study mode is solitary or remote, and it provides a design argument for cohort-based rather than individual delivery wherever the schedule permits.

10.5 Attention, Emotion Regulation and Sleep. Mindfulness training is theorised to improve attentional control and emotion regulation, and the employee literature documents improvements in mindfulness, self-compassion, relaxation and quality of sleep following MBSR [Janssen et al., 2018]. Sleep quality is a plausible common pathway linking all three modalities to cognitive performance in both the work and academic domains, and it is also one of the outcomes most vulnerable to the time-scarcity characteristic of the dual role. The inclusion of sleep as a standard outcome in future trials in this population is therefore strongly indicated.

These five mechanisms are mutually reinforcing rather than redundant, which provides the theoretical justification for a multi-modal rather than a single-modality intervention. A learner who practices yoga twice weekly and meditates briefly on most days is plausibly engaging psychophysiological, affective, attentional and social pathways simultaneously; a learner who does only one of these is engaging a subset.

11. Research Gaps and Future Directions

11.1 Absence of Dedicated Trials in the Dual-Role Population. The evidence reviewed here derives from employees, students and stressed adults. Studies that recruit participants who are simultaneously employed and enrolled are scarce. The cohorts that come closest are health and social care students and practising professionals [Lo et al., 2021], part-time postgraduate and MBA samples studied observationally rather than experimentally [Dolapihilla, 2020; Abdilah et al., 2025; Jaya et al., 2026], and adult-learning samples in which work, life and study balance is examined qualitatively [Lowe & Gayle, 2007; Jogaratnam & Buchanan, 2004]. A randomised or quasi-experimental trial of a combined movement–breath–attention intervention in working professional students is the single most valuable next study. Such a trial should recruit within professional, executive and part-time programmes; should measure both the exhaustion axis and the engagement axis of the job demands–resources model; and should include a follow-up beyond the end of the intervention to test maintenance.

11.2 Dose and Adherence Remain Unresolved. No optimal dose of physical activity for mental-health benefit has been confirmed [White et al., 2024], and yoga trials vary widely in style, frequency and duration [Schleinzer et al., 2024]. For a time-poor population, dose-finding is not an academic nicety but the key design question: the minimum effective dose that survives a real professional schedule must be established. The existing evidence that a 20-minute daily yoga module [Upadhyay et al., 2025] and a six-week combined programme [Kukihara et al., 2022] can affect burnout suggests that the minimum is lower than is commonly assumed, and that dedicated dose-comparison trials in this population would be feasible.

11.3 Representativeness and Measurement. Participants in the yoga trials were predominantly female (median 91.5%) and geographically clustered [Schleinzer et al., 2024], limiting generalisability to male-dominated professional cohorts. Measurement is also fragmented: the MBSR review identified more than 35 different outcome measures across 23 studies [Janssen et al., 2018]. Adopting a common core outcome set would make future studies comparable and poolable. A defensible core set for this population would combine the WHO-5 Well-Being Index [World Health Organization, 2024; Topp et al., 2015], a validated perceived-stress measure, a burnout measure capturing emotional exhaustion, a sleep-quality measure, and at least one objective physiological marker such as heart-rate variability or salivary cortisol where feasible.

11.4 Unexamined Dimensions. The spiritual and existential dimension of holistic well-being is the least frequently measured in contemporary intervention research, despite being the traditional orientation of contemplative practice. Similarly, the social dimension is often assumed rather than measured, even in group-based programmes where social connection may be doing substantial work. Future studies should

measure both explicitly, using established instruments, so that the mechanisms proposed in Section 10 can be tested rather than merely asserted.

11.5 Structural versus Individual Intervention. The work–life–study balance literature indicates that the problem is partly structural [Abdilah et al., 2025; Jaya et al., 2026]. Research is therefore needed on institutional redesign — scheduling, assessment timing, workload norms, and the provision of protected time — in combination with individual-level practices. A trial that tests an individually delivered practice without addressing the structural conditions that generate the load risks showing a null result for reasons that have nothing to do with the practice.

12. Implications for Institutions, Practitioners and Policy

The evidence supports several actionable recommendations for universities delivering professional, executive and part-time programmes, and for the employers that sponsor their employees.

12.1 Design for the Minimum Effective Dose. Because no optimal dose is established and adherence drives outcomes [White et al., 2024; Conn et al., 2009], programmes should offer short, high-frequency options — a brief daily practice plus two or three longer sessions weekly, on a schedule-adapted model of the kind successfully piloted with health care providers [Gan et al., 2024] and demonstrated with a 20-minute daily yoga module [Upadhyay et al., 2025].

12.2 Prioritise Remote and Low-Friction Delivery. Remote delivery of yoga to working adults has been shown to be feasible and effective for stress and executive function [Phansikar et al., 2023], and a mobile-health-aided yoga-based meditation and breath intervention has been tested in health care providers [Bhardwaj et al., 2023]. Remote and app-supported formats remove the commuting and scheduling barriers that most often defeat workplace programmes.

12.3 Offer a Multi-Modal Package Rather Than a Single Intervention. Physical activity, yoga and mindfulness address overlapping but non-identical mechanisms [White et al., 2024; Castellote-Caballero et al., 2024; Khanal et al., 2026]; combining them allows learners to choose a modality that fits a given week without abandoning the practice entirely. This flexibility also supports the autonomy need identified by self-determination theory, which in turn supports sustained engagement [Ryan & Deci, 2017].

12.4 Embed the Intervention in the Curriculum and the Work Schedule, not in Personal Time. Given documented time scarcity and role conflict in this population [Lowe & Gayle, 2007; Jogaratnam & Buchanan, 2004; Jaya et al., 2026], optional activities placed outside working and teaching hours will

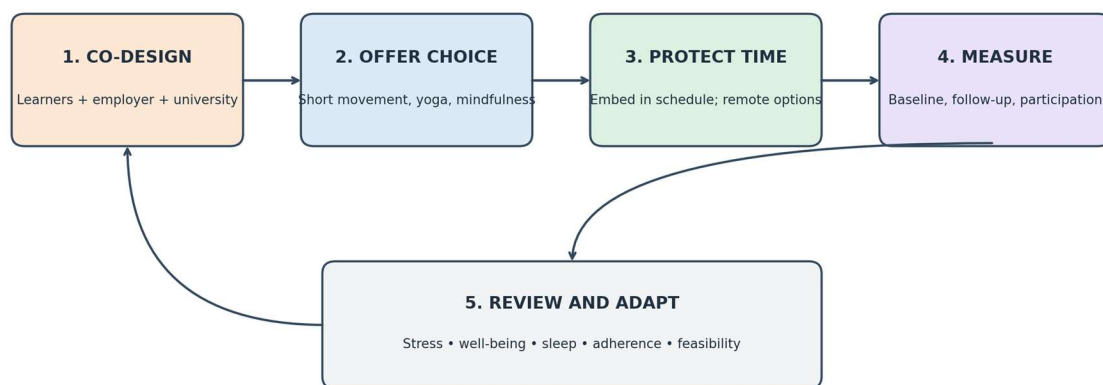
preferentially reach those with the least need. Short practices embedded at the start of a class session or a team meeting reach everyone and do not compete with recovery.

12.5 Treat Well-Being as Multi-Dimensional in Programme Evaluation. Instruments should span hedonic and eudaimonic outcomes — for example, the WHO-5 alongside a PERMA-based or psychological well-being measure — because institutional decisions are made on the basis of measured outcomes [World Health Organization, 2024; Ng et al., 2025; Li, 2025]. Evaluation should also include the two axes of the job demands–resources model, so that reductions in exhaustion and gains in engagement are both captured [Schaufeli, 2017].

12.6 Target Burnout and Recovery Explicitly. The strongest MBSR outcomes in employees were reductions in emotional exhaustion and stress [Janssen et al., 2018]; yoga trials have reported effects on burnout in several occupational groups [Fogawat et al., 2024; Kukihara et al., 2022; Alexander et al., 2015]; and physical activity has been argued to be a target variable precisely to prevent stress-related downward spirals [Gerber et al., 2014]. Programmes should therefore measure exhaustion and recovery rather than only satisfaction.

12.7 Communicate Realistic Expectations. Pooled effects are small to moderate [Khanal et al., 2026; Goyal et al., 2014; Schleinzner et al., 2024]. Overstating benefits invites disappointment and disengagement. A programme that promises modest improvement in stress and exhaustion, and delivers it, will sustain participation better than one that promises transformation. Figure 3 translates these recommendations into a cycle that can be evaluated locally.

A pragmatic institutional implementation and evaluation cycle



Implementation framework proposed by this review; evaluate locally before claiming effectiveness.

Figure 3. Proposed institutional implementation and evaluation cycle.

13. Limitations of This Review

This review has six principal limitations. First, it is narrative rather than systematic: although the search strategy, databases and criteria are documented, there is no exhaustive screening record, no formal risk-of-bias assessment and no meta-analytic pooling, so selective citation cannot be excluded. Second, the synthesised evidence comes largely from populations adjacent to — but not identical with — working professional students, and the inferential transfer from employees and from full-time students to dual-role learners is an assumption rather than an established finding. Third, several of the source syntheses report high heterogeneity, low certainty of evidence and small samples [Schleiner et al., 2024; Janssen et al., 2018; White et al., 2024], which places a ceiling on the confidence of any conclusion drawn from them. Fourth, outcomes and measures vary across studies, and effect sizes are therefore not directly comparable between modalities. Fifth, publication and self-selection bias are documented in the primary literature [Janssen et al., 2018], and are likely to inflate the apparent benefits of all three modalities. Sixth, the review is restricted to English-language publications from 2004 onwards, so earlier foundational work and non-English literature are not represented.

A further interpretive limitation concerns comparison conditions. Because effects are consistently larger against passive controls than against active comparators [Goyal et al., 2014; Schleiner et al., 2024], the effect sizes reported in this review should not be read as evidence that any one modality is superior to another; they establish primarily that each is superior to no intervention. Effect sizes are reported here exactly as published by the source studies and should be read with these caveats in mind.

14. Conclusion

Physical activity, yoga and meditation each contribute to the holistic well-being of adults under occupational and academic demand, through overlapping psychophysiological and psychosocial mechanisms.

For working professional students — a population defined by role multiplicity, time scarcity and compounded evaluative pressure, and for whom work–life imbalance is a documented predictor of stress and burnout — the practical implication is a low-threshold, institutionally supported, multi-modal package: brief daily yoga or mindfulness practice, regular moderate-intensity physical activity positioned as recovery rather than as a further obligation, remote and schedule-adapted delivery, and cohort formats that generate social connection. The decisive research gap is the absence of dedicated, methodologically rigorous trials in



this population; until such trials exist, institutional programming in professional and executive education should be treated as an evidence-informed but unverified intervention, and it should itself be evaluated with multi-dimensional well-being measures so that the evidence base for these learners can begin to accumulate.

Declarations

Originality and plagiarism. This manuscript is an original work prepared by the authors. It has not been published previously, in whole or in part, and it is not under consideration by any other journal or conference. All sources consulted are acknowledged through in-text citations and are listed in full in the reference list. The authors confirm that no part of the manuscript reproduces the work of others without attribution, and that the review was conducted in conformity with the principles of publication ethics relating to originality and plagiarism.

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Consent for publication: Not applicable.

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Appendix A: Search Strategy Summary

Table A1. Search strategy summary

Component	Specification
Databases	Medline/PubMed, Scopus, PsycINFO, Web of Science, Cochrane Library, Google Scholar



Supplementary methods	Citation chaining from retrieved reviews; hand-searching of reference lists
Date range	2004 to 2026 inclusive
Language	English
Intervention block	"physical activity" OR exercise OR aerobic OR "leisure-time physical activity" OR yoga OR asana OR pranayama OR "mind-body" OR meditation OR mindfulness OR MBSR
Outcome block	"well-being" OR wellbeing OR "psychological well-being" OR "subjective well-being" OR stress OR "perceived stress" OR anxiety OR burnout OR cortisol OR "heart rate variability" OR sleep OR "quality of life" OR "academic performance" OR productivity
Population block	"working professional" OR employee OR worker OR workplace OR "part-time student" OR "adult learner" OR "executive student" OR postgraduate OR "university student"
Combination logic	Terms combined with OR within blocks; blocks combined with AND
Study designs included	RCTs, quasi-experimental, cohort, cross-sectional, systematic reviews, meta-analyses, conceptual papers (framework only)
Studies excluded	Paediatric/adolescent-only samples; disease-specific therapy trials without well-being outcomes; case reports; editorials; non-peer-reviewed commentary
Sources retained	62 (approximately one-third quantitative syntheses)
Quality appraisal	Descriptive only; no formal risk-of-bias instrument applied (narrative design)
Pooling	Not undertaken; effect sizes reported as published by source studies

Appendix B: Summary of Effect Sizes Reported by Source Syntheses**Table B1.** Effect sizes reported by source syntheses

Outcome domain	Source	Reported effect	Certainty as reported
Yoga and short-term perceived stress (vs passive control)	Schleinker et al. (2024)	SMD = -0.69 (95% CI -1.12 to -0.25)	Low; $I^2 = 60\%$
Yoga and longer-term stress (vs active control)	Schleinker et al. (2024)	SMD = 0.23 (95% CI 0.06 to 0.40)	Low
Yoga and perceived stress (12-week university programme)	Castellote-Caballero et al. (2024)	d = 0.44	Single RCT
Yoga and emotional well-being	Castellote-Caballero et al. (2024)	d = 0.47	Single RCT
Yoga and state anxiety	Castellote-Caballero et al. (2024)	d = 0.38	Single RCT
Yoga and trait anxiety	Castellote-Caballero et al. (2024)	d = 0.80	Single RCT
Meditation and perceived stress	Khanal et al. (2026)	g = -0.51	Pooled meta-analysis
Meditation and distress	Khanal et al. (2026)	g = -0.49	Pooled meta-analysis
Meditation and job stress	Khanal et al. (2026)	g = -0.53	Pooled meta-analysis
Meditation and anxiety	Khanal et al. (2026)	g = -0.38	Pooled meta-analysis
Physical activity and psychological well-being (workplace health promotion)	Proper & van Oostrom (2019)	Small positive effect	Review of reviews
Physical activity and stress (university students)	Malagodi et al. (2025)	Moderate to large reduction	Systematic review
Occupational stress (physical relaxation interventions, ranked)	Zhang et al. (2021)	Ranked ordering of modalities	Network meta-analysis
Optimal physical activity dose for mental health	White et al. (2024)	Not confirmed	80% of studies observational