



Lifestyle Behaviours and Well-Being among Working Professional Students: A Narrative Review

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Abstract: Background: Working professional students combine paid employment with formal higher education and often with caregiving responsibilities, yet remain underrepresented in lifestyle research and are frequently subsumed within general student samples. Objective: This narrative review synthesises evidence on physical activity, sedentary behaviour, dietary behaviour, sleep, and stress, burnout and well-being among working professional students and related employed student groups, and integrates the findings into a testable conceptual model. Methods: Guided by the SANRA criteria for narrative reviews, PubMed/PMC, Scopus, Web of Science, ERIC and Google Scholar were searched from database inception to March 2026 using defined Boolean strings, English-language limits and pre-specified eligibility criteria. Approximately sixty records were assessed in full text, and thirty-nine sources informed the thematic synthesis. No statistical pooling was undertaken, and direct evidence was drawn from employed or working students. Results: Work–study demands appear to shape lifestyle largely indirectly, through time pressure, role conflict, boundary permeability and reduced recovery opportunity. The most direct evidence concerns work–study conflict, stress, burnout and well-being; findings for sedentary behaviour, dietary behaviour and physical activity are substantially extrapolated from general student or adult populations and are labelled as such. Employment is not uniformly harmful: where schedules are predictable, job–study congruence is high and institutional support exists, financial and developmental benefits may buffer strain. Conclusion: A coordinated, multicomponent approach coupling individual behaviour change with institutional and workplace scheduling reform is warranted, and the framework should be tested longitudinally within defined working-student subgroups rather than undifferentiated student samples.

Keywords: Working Professional Students, Lifestyle Behaviours, Physical Activity, Sleep, Work–Study Conflict.

1. Introduction

The composition of the higher-education population has changed substantially over the past two decades. Alongside traditional school-leaving entrants, universities and professional institutions increasingly enrol adults who remain in paid employment while they study; this group is variously described in the literature as working students, employed university students, working adult learners, or working professional students (Remenick & Bergman, 2021; Summer *et al.*, 2025). Lifelong-learning policy, the expansion of part-time, distance and online provision, and the professionalisation of postgraduate qualifications have reinforced this trend, and recent syntheses of support provision argue that paid employment is now an

organising feature of many students' university experience rather than a peripheral activity (Grozev *et al.*, 2026; Remenick & Bergman, 2021). The group is nevertheless internally heterogeneous, spanning undergraduates in part-time service employment and mid-career professionals completing doctoral study—a variation whose methodological consequences are examined in Section 4.

What distinguishes these students is not the fact of employment but the structural competition between two sets of obligations, both of which impose fixed deadlines and demand sustained cognitive effort. Owen, Kavanagh and Dollard (2018) proposed an integrated model in which work–study conflict and work–study facilitation operate as parallel mediating

mechanisms linking demands and resources to health and academic outcomes. Empirical work has repeatedly identified the conflict pathway: conflict between paid work and study has been associated with greater burnout and lower satisfaction with university life (Lingard, 2007); working students describe persistent incompatibility across employment, study and social life (Grozev & Easterbrook, 2022); and gender-specific work–study–life balance challenges have been documented among non-conventional students in the Gulf Cooperation Council region (Ashour *et al.*, 2026). The facilitation pathway is equally real, however, because employment generates income, practical competence and career-relevant knowledge, particularly where the job and the field of study are congruent (Di Paolo & Matano, 2022). The same exposure therefore plausibly yields both strain and resource gain, and any review of lifestyle consequences must hold both possibilities simultaneously rather than assuming that working is harmful.

Within this framing, physical activity is the domain with the longest-standing evidence base but also with the least population-specific evidence. Meta-analytic work in general populations shows that physical activity is associated with reduced depression, anxiety and psychological distress (Singh *et al.*, 2023), and domain-specific analyses in adults confirm associations between activity and mental health (White *et al.*, 2017). In students, longitudinal daily-level data indicate that physical activity tracks with lower stress load and better recovery across a semester (Teuber *et al.*, 2024), and a recent meta-analysis of university students reports an inverse association between physical activity and depressive symptoms (Wang *et al.*, 2026). Large multi-university surveys nevertheless show wide variation in activity levels by sex, institution and living arrangement (El Ansari *et al.*, 2011; Savage *et al.*, 2024), and almost none of this literature isolates students who are simultaneously in paid employment.

Sedentary behaviour and dietary behaviour show a similar pattern of indirect applicability. Prolonged sitting is now understood as a risk exposure that is partly independent of physical activity (Patterson *et al.*, 2018), and students accumulate long sitting periods through classes, commuting and screen-based study, with socio-ecological correlates that vary between institutions (Möckel *et al.*, 2026; Savage *et al.*, 2024). Dietary quality among students is shaped by cost, availability and time; cross-sectional data link sedentary patterns with poorer food choices (Akter & Hossain, 2024), while nutritional-psychiatry research

connects diet quality to mental well-being and provides randomised evidence that whole-of-diet interventions can reduce depressive symptoms (Firth *et al.*, 2020; Marx *et al.*, 2017; Opie *et al.*, 2015). Sleep is arguably the most directly relevant domain, because work schedules and class timetables compete for the same evening and early-morning hours: sleep and activity are associated in students, although largely through cross-sectional, self-reported designs (Memon *et al.*, 2021), chronotype and shift timing influence academic performance (Figueiredo & Kulari, 2024), and a study of working college students in Brazil linked sleep duration to working hours and evening class attendance (Nagai-Manelli *et al.*, 2012).

The strongest body of evidence concerns stress, burnout and well-being. Burnout and maladjustment have been demonstrated specifically among employed students, supporting the argument that work and study demands should be considered jointly rather than separately (Drăghici & Cazan, 2022). Demands–resources extensions of this logic show that burnout is socially patterned and mediated by resource availability (Rußmann *et al.*, 2026), and that on-campus and distance-learning students differ in how demands and resources translate into mental-health outcomes (Schnädter *et al.*, 2026). In general higher education, academic stress is correlated with poorer mental well-being across a range of student groups (Barbayannis *et al.*, 2022), systematic review evidence identifies the principal determinants of student mental health (Campbell *et al.*, 2022), and psychological distress co-occurs with multiple risk behaviours such as low activity, poor diet and substance use (Deasy *et al.*, 2014).

Several reviews have addressed adjacent questions, but none integrates these domains for this population. Remenick and Bergman (2021) reviewed institutional support for working students; an interdisciplinary scoping review mapped the support literature and identified work–study conflict among its organising themes (Grozev *et al.*, 2026); Ashour *et al.* (2026) examined work–study–life balance through a narrative review; Memon *et al.* (2021) synthesised sleep and physical activity but in general university students; Wang *et al.* (2026) and Weng and Wang (2026) addressed activity, sedentary behaviour, sleep and mental health in university students; and Campbell *et al.* (2022) and Savage *et al.* (2024) reviewed determinants of student mental health and characterised lifestyle behaviours in a single national cohort. These syntheses are therefore either domain-specific, population-general, or oriented to academic

and support outcomes rather than to health behaviour. What remains unresolved is how the work–study interface connects contextual demands to several lifestyle domains simultaneously, and which conclusions rest on direct evidence from employed students rather than on extrapolation.

The present review addresses this gap in four ways. First, it synthesises five lifestyle domains and well-being together rather than separately, so that interdependencies are visible. Second, it explicitly classifies each conclusion according to the directness of its supporting evidence. Third, it articulates the Integrated Work–Study–Lifestyle Framework as a testable conceptual model rather than an established causal pathway. Fourth, it identifies the specific designs needed to test that model in real work–study conditions. Its contribution is therefore conceptual and methodological rather than epidemiological: it does not estimate effect sizes, but supplies a defensible organising framework and a transparent account of the evidence on which that framework rests.

2. Aim and Objectives

The aim of this narrative review was to synthesise the available literature on lifestyle behaviours and well-being among working professional students and closely related employed student groups, and to organise that literature within a single conceptual framework that can be tested empirically. Five specific objectives follow from this aim: to examine physical activity; to examine sedentary behaviour; to examine dietary behaviour; to evaluate sleep and recovery; and to assess stress, burnout and well-being. Two integrative objectives complete the review: to situate all five domains within the work–study context, including its occupational, academic, digital, family and financial determinants; and to identify research gaps and the design features required of multicomponent interventions for this population.

3. Review Methodology and Search Strategy

3.1 Review Type and Reporting Framework

This is a narrative review. The design was selected because the topic spans health, education, occupational and behavioural research traditions whose evidence cannot meaningfully be pooled, and because the review aims to construct an explanatory framework rather than to estimate a pooled effect (Snyder, 2019). The manuscript is reported against SANRA, the Scale for

the Assessment of Narrative Review Articles, and the sub-sections below correspond to its items on justification, aims, description of the literature search and referencing (Baethge *et al.*, 2019). Because the design is narrative, no PRISMA flow diagram is presented and no claim of systematic-review comprehensiveness is made; where the text reports a specific finding, the design and population of the supporting study are stated so that readers may judge its weight.

3.2 Databases, Search Dates and Period Covered

PubMed/PMC, Scopus, Web of Science, ERIC and Google Scholar were searched. The searches were executed between 5 January 2026 and 20 March 2026 and covered publications from database inception to 20 March 2026, with deliberate emphasis on literature published during 2022–2026 in order to reflect recent changes in remote work, digital learning and adult participation in higher education. Google Scholar results were screened only for the first ten pages of each query and were used primarily to locate full texts already identified through the indexed databases, in order to limit the known noise of that source.

3.3 Representative Search Strings and Boolean Operators

Search terms were organised into three blocks and combined with the Boolean operators AND and OR. Block A (population) comprised "working students" OR "working professional students" OR "employed students" OR "student workers" OR "part-time students" OR "adult learners" OR "working adult learners" OR "postgraduate students" AND employment. Block B (exposure and context) comprised "work–study conflict" OR "work–study facilitation" OR "work–life balance" OR "role conflict" OR "job demands" OR "shift work" OR "time pressure" OR "academic workload" OR "online learning". Block C (outcomes) comprised "physical activity" OR exercise OR "sedentary behaviour" OR sitting OR "dietary behaviour" OR nutrition OR "eating habits" OR sleep OR recovery OR "academic stress" OR burnout OR "psychological well-being" OR "mental health". A representative Ovid/PubMed-style string was: ("working students"[All Fields] OR "employed students"[All Fields] OR "working professional students"[All Fields]) AND ("physical activity"[MeSH Terms] OR exercise[All Fields] OR "sedentary behaviour"[All Fields] OR sleep[All Fields] OR diet[All Fields]) AND ("work-study conflict"[All

Fields] OR "academic stress"[All Fields] OR burnout[All Fields] OR wellbeing[All Fields]). The equivalent Scopus string was: TITLE-ABS-KEY (("working student" OR "employed student" OR "adult learner") AND ("physical activity" OR sedentary OR sleep OR diet OR stress OR burnout OR wellbeing)). For ERIC, descriptors were combined as (("Working Students" OR "Part Time Students" OR "Adult Students") AND ("Life Style" OR "Physical Activity" OR "Sleep" OR "Stress Variables" OR "Well Being")). Where a database supported controlled vocabulary, both index terms and free-text synonyms were used; where it did not, truncation and adjacency operators were applied. Reference lists of all included reviews were hand-searched for additional primary studies (backward citation searching), and no forward citation searching was undertaken.

3.4 Eligibility Criteria

Studies were included if they were peer-reviewed empirical reports, systematic or narrative reviews, or meta-analyses; written in English; published in a journal, or, in a small number of cases, as a full-text scholarly monograph or thesis with retrievable methods; and if they reported on physical activity, sedentary behaviour, dietary behaviour, sleep or recovery, stress, burnout or well-being. Studies were required to concern an eligible population: working professional students, employed university students, adult learners in employment, part-time students in paid work, or, where direct evidence was unavailable, general university students or working adults whose findings were relevant to a specific lifestyle domain. A limited number of foundational theoretical works were retained irrespective of publication date when they were necessary to explain a mechanism used in the framework. Studies were excluded if they were written in a language other than English; if they were conference abstracts or book chapters without retrievable data; if the population was of school-age children or of adults not engaged in either study or employment; if the outcome was unrelated to lifestyle behaviour, stress or well-being; or if they were commentary, editorial or opinion pieces not used as theoretical foundations. Pre-prints were excluded except for one recent scoping review of support for working students, which is cited explicitly as a pre-print.

3.5 Selection, Synthesis and Approximate Yield

Records were screened in two stages: title and abstract screening against the eligibility criteria,

followed by full-text assessment. Screening and data extraction were performed by the first author and verified by the second author; disagreements were resolved by discussion. Retained sources were charted by population, design, lifestyle domain and the directness of the evidence they provide, and were then synthesised thematically: evidence was grouped into physical activity, sedentary behaviour, dietary behaviour, sleep and recovery, stress, burnout and well-being, and the contextual mechanisms linking work and study. No statistical pooling or meta-analysis was undertaken and no summary effect estimate is reported. Approximately sixty records were assessed in full text, and thirty-nine sources are cited in the final synthesis. Of these, the direct-evidence sources charted in Table 2 were drawn from employed or working students, including work-study conflict, burnout, sleep-schedule and support studies; the remaining sources provided indirect evidence from general university-student or working-adult populations and are labelled as indirect wherever they are used. Because the retained sources were charted by directness as well as by domain, every conclusion in Sections 7–11 identifies whether its support is direct or extrapolated.

3.6 Criteria for the Qualitative Evidence-Strength Labels

The evidence-strength labels used in Section 15 are authors' qualitative judgements, not formal GRADE ratings, and are defined by four explicit criteria: the number of studies available; the consistency of their findings; directness, that is, whether participants were employed students or members of a broader population; and relevance and design quality, meaning the extent to which measures, samples and designs permitted inference about working professional students. On this basis, a label of Moderate–Strong denotes at least several studies of working-student populations with largely consistent findings and at least some conceptual or longitudinal support; Moderate denotes consistent evidence dominated by general student or adult samples, or heterogeneous evidence from working-student samples; Limited–Moderate denotes few studies, largely indirect evidence, or substantial inconsistency; and Limited denotes an absence of direct empirical evidence, with the domain resting on conceptual argument alone.

3.7 Terminology and the Direct–Indirect Distinction

Throughout this review, "working professional students" refers to adults enrolled in higher education

who simultaneously hold paid employment, whether full-time or part-time, and who may additionally carry caregiving or financial responsibilities. Because direct evidence for this population is unevenly distributed across domains, each thematic section states explicitly whether the evidence discussed is direct (drawn from employed or working students) or indirect (extrapolated

from general university-student or working-adult populations), and conclusions that rest on extrapolation are labelled as such in the text rather than presented as established characteristics of working professional students. The overall scope and methodological characteristics of the review are summarized in Table 1.

Table 1. Review scope and methodological characteristics

Component	Final specification
Review type	Narrative review, reported against SANRA
Population	Working professional students; employed university students; working adult learners; part-time students in paid employment
Core lifestyle domains	Physical activity, sedentary behaviour, dietary behaviour, sleep, stress/burnout/well-being
Contextual domains	Work–study conflict and facilitation, workload, schedule control, financial and social resources, digital demands
Databases searched	PubMed/PMC, Scopus, Web of Science, ERIC, Google Scholar
Search window	Executed January–March 2026; publications from database inception to 20 March 2026
Language restriction	English only
Synthesis	Thematic/narrative synthesis
Quantitative pooling	Not undertaken
Evidence classification	Direct or indirect, with explicit strength criteria (Section 3.6)

Table 2. Representative evidence base and relevance to working professional students

Evidence source	Population/context	Design	Lifestyle domain	Main contribution	Directness
Owen <i>et al.</i> (2018)	Working students	Integrated conceptual model	Work–study conflict; well-being	Framework for competing demands and resources	Direct
Grozev & Easterbrook (2022)	Working students	Qualitative/empirical	Work–study balance; stress	Incompatibility between employment, study and social life	Direct
Drăghici & Cazan (2022)	Employed students	Empirical	Burnout; maladjustment	Combined work and study demands relate to burnout and adjustment	Direct
Lingard (2007)	Students in paid work	Empirical	Work–study conflict; burnout	Conflict predicts burnout and lower university satisfaction	Direct
Nagai-Manelli <i>et al.</i> (2012)	Working college students	Observational	Sleep; work schedule	Sleep duration linked to work schedule and evening classes	Direct

Memon <i>et al.</i> (2021)	University students	Systematic review/meta-analysis	Sleep; physical activity	Broader evidence on sleep and activity	Indirect
Patterson <i>et al.</i> (2018)	General adult populations	Systematic review/meta-analysis	Sedentary behaviour	Health relevance of prolonged sedentary time	Indirect
Singh <i>et al.</i> (2023)	General populations	Overview of systematic reviews	Physical activity; mental health	Activity–psychological outcome associations	Indirect
Barbayannis <i>et al.</i> (2022)	College students	Cross-sectional	Academic stress; well-being	Contextual evidence on stress and well-being	Indirect

4. Conceptualising Working Professional Students

"Working professional student" is an inherently heterogeneous category, and the imprecision with which it is used in the literature is itself a methodological problem. The term currently subsumes at least four analytically distinct groups: mid-career professionals undertaking postgraduate or doctoral study alongside full-time employment; employees enrolled in part-time or distance-learning degree programmes; undergraduates who work part-time, frequently in service or shift-based roles unrelated to their field of study; and students in professional or health disciplines whose programmes include clinical or shift placements that are simultaneously training and employment (Remenick & Bergman, 2021; Grozev *et al.*, 2026). These groups differ in age, income, autonomy over working hours, seniority, and the extent to which their employment is congruent with their study.

These differences matter because they are directly implicated in the mechanisms the review considers. A postgraduate professional with schedule control and paid study leave faces a very different pattern of demands from an undergraduate on rotating shifts with no control over rota, even if both work thirty hours a week. Job–study congruence is likewise consequential: where employment and study occupy the same field, the two roles may reinforce one another through shared knowledge and networks, whereas incongruence adds a second competing demand without compensating resource gain (Di Paolo & Matano, 2022). Employment intensity, shift structure, employment status (full-time versus part-time), level of study (undergraduate versus postgraduate), caregiving responsibility and financial necessity therefore

constitute the minimum set of variables that any study of this population should report, and Section 16 identifies their under-reporting as a central gap in the existing evidence.

A second conceptual distinction is important for the interpretation of this review. Physical activity, sedentary behaviour, sleep, diet and screen exposure are lifestyle behaviours that students enact; by contrast, employment arrangements, commuting, examination scheduling, financial stability, caregiving status, supervisor support and course flexibility are conditions that determine whether those behaviours are practically available. Much of the applied literature conflates the two and then locates responsibility for behaviour with the individual, producing recommendations to exercise, plan meals and protect sleep that presume discretionary time the student may not possess. The framework developed in Section 13 treats conditions and behaviours as separate layers precisely in order to make this distinction explicit, and existing work supports the argument that employment should be analysed as an integrated part of the student experience rather than as an external activity that competes with it (Remenick & Bergman, 2021; Summer *et al.*, 2025).

5. Theoretical Frameworks

Four theoretical traditions are integrated in this review, and each supplies a different part of the explanatory chain rather than competing with the others. Role conflict and role strain theory provide the most immediate account of the population's core problem: multiple roles generate incompatible behavioural expectations, and even in the absence of an overt clash the cumulative load of work deadlines, classes, examinations, caregiving and social obligations

consumes finite time and energy. This is the mechanism most often implicit in working-student research, and it explains why demands that would be tolerable in isolation become problematic in combination.

Work-study conflict theory specifies the interface more precisely. Owen, Kavanagh and Dollard (2018) distinguish bidirectional interference work interfering with study and study interfering with work from facilitation, in which participation in one role enhances performance in the other. This bidirectionality is essential to a balanced account because it predicts that the same employment exposure can produce strain or benefit depending on conditions rather than being intrinsically harmful. Empirical evidence supports both directions: conflict between paid work and study predicts burnout and diminished satisfaction with university life (Lingard, 2007), while field-congruent employment predicts labour-market and developmental gains (Di Paolo & Matano, 2022).

Resource-based models, particularly the job demands-resources tradition and its extension to study demands and resources, explain the moderating conditions. Under this logic, outcomes depend on the balance between demands and the resources available to meet them, where resources include autonomy, schedule control, supervisor and peer support, financial security, sleep and recovery opportunity. Recent applications show that burnout is socially patterned by resource inequality (Rußmann *et al.*, 2026) and that students in different study modes differ in how demands and resources translate into mental-health outcomes (Schnädter *et al.*, 2026), which is directly relevant to working professional students, whose resources are unusually unevenly distributed.

Self-determination theory supplies the motivational component that resource models leave underspecified. Autonomy, competence and relatedness are treated as psychological nutrients whose satisfaction sustains high-quality motivation and well-being (Ryan & Deci, 2020; Vansteenkiste *et al.*, 2020). In this population, the perceived relevance of study content and the degree of volitional control over both work and study schedules are plausible determinants of whether a heavy combined workload is experienced as manageable or detrimental to well-being, and adult-learning perspectives reinforce this by noting that employed adult learners value relevance, prior experience and immediate application, and are therefore likely to respond differently from traditional entrants to identical curricular demands. Taken together, these frameworks generate the specific

testable proposition that contextual demands affect lifestyle behaviour and well-being indirectly, through proximal experiences of conflict or facilitation and through resource loss or gain a proposition that can be falsified by showing that demands influence outcomes independently of those mediators. The theoretical frameworks, their application to working professional students, and the expected pathways are summarized in Table 3.

6. Determinants of Lifestyle

6.1 Occupational and Digital Demands

Occupational structure is the most frequently cited determinant in the reviewed literature, and it operates through several separable channels. Long or unpredictable hours, shift work, commuting time, peak-period deadlines and low schedule control all reduce the time and energy available for study, exercise and rest, but they do so differently: shift work disrupts circadian alignment, commuting consumes fixed blocks of time, and low schedule control limits students' ability to schedule activity during available periods. There is a countervailing channel, since employment related to the field of study can supply learning, networks and career-relevant competence, and graduates whose work matched their field of study show better labour-market outcomes (Di Paolo & Matano, 2022). Academic demands compound these pressures. Clustering of assessment deadlines, mandatory synchronous attendance and group work create predictable seasonal peaks, so that periods of maximum study demand may coincide with periods of maximum work demand; online and hybrid provision offers flexibility but also lengthens screen exposure and blurs the boundary between work time, study time and rest, and digital fatigue has been described among students enrolled in intensive online courses (Romero-Rodríguez *et al.*, 2023).

Recent scoping work confirms that digital technologies can support student physical health while also generating screen-time-related risks, so the net effect is contingent rather than uniform (Niu *et al.*, 2026).

Table 3. Theoretical frameworks relevant to working professional students

Framework	Core idea	Application to working professional students	Expected pathway
Role conflict / role strain	Multiple roles create incompatible or cumulative demands	Work, study and personal responsibilities compete for finite resources	Time pressure → reduced recovery → stress/burnout
Work–study conflict and facilitation	Work and study interfere bidirectionally, but may also enhance one another	Peak work periods may coincide with assessments; congruent employment may add resources	Conflict → disrupted routine; facilitation → resource gain
Resource-based stress / JD-R and SD-R	Outcomes depend on the balance of demands and resources	Autonomy, support, flexibility and recovery buffer demands	Resource loss → fatigue and poorer coping
Self-determination theory	Autonomy, competence and relatedness support sustainable motivation	Relevant learning and supportive environments strengthen engagement	Need support → motivation → persistence/well-being
Adult-learning perspective	Adults value relevance, experience and practical application	Work-integrated and flexible learning reduce unnecessary friction	Better fit → stronger engagement and integration

6.2 Family, social and financial conditions

Financial necessity is among the most powerful and least modifiable determinants, because for many working students income is not discretionary and cannot be reduced by substituting study time. Students funding their own tuition, supporting dependants or servicing debt have little latitude to cut paid hours, which means that interventions requiring reduced employment are structurally unavailable to them. Caregiving and household responsibilities place additional demands on available time that falls disproportionately on women and has been documented as a specific work–study–life balance challenge for non-conventional students (Ashour *et al.*, 2026). Social support operates in the opposite direction and is a genuine resource: connection with peers has been shown to be important for adult and online learners in managing stress and sustaining retention (Shatila, 2024). Recognising that these conditions are largely structural rather than volitional is important for the recommendations in Section 17, which therefore address institutions and employers as well as students.

7. Physical Activity

Physical activity is extensively studied in general student populations but remains poorly studied specifically among working professional students. In general populations, an overview of systematic reviews

finds consistent associations between physical activity and reduced depression, anxiety and psychological distress (Singh *et al.*, 2023), and meta-analytic evidence in adults confirms domain-specific associations with mental health (White *et al.*, 2017). Within student populations, the evidence is supportive but heterogeneous: longitudinal daily-level data show that physical activity tracks with lower stress load and better recovery and academic performance parameters across a semester (Teuber *et al.*, 2024); a meta-analysis of university students reports an inverse association between physical activity and depression (Wang *et al.*, 2026); systematic review evidence indicates that physical activity interventions improve mental health and well-being in university students (Malagodi *et al.*, 2026); and compositional analyses suggest that substituting sedentary or sleep time with activity is associated with better mental-health profiles (Pennisi *et al.*, 2026). A scoping review of perceived physical literacy points to the same direction while noting the immaturity of the evidence base (Leung *et al.*, 2025).

No comparable body of evidence exists for working professional students specifically. The dominant finding in the general student literature—that activity levels vary substantially by sex, institution, faculty and living arrangement (El Ansari *et al.*, 2011; Savage *et al.*, 2024)—implies that employment status would be an equally important stratifier, yet it is rarely

reported. What can be inferred from the studies of employed students is that the principal constraint may be opportunity rather than knowledge or intention: students who already know that exercise is beneficial may still be unable to schedule it when paid hours, commuting and evening classes consume the available day. It is also necessary to distinguish inactivity from sedentary behaviour, since a student may meet activity guidelines and still accumulate high levels of sedentary time across work, commuting, study and leisure. This conclusion is an extrapolation from general student and adult evidence rather than a demonstrated characteristic of working professional students, and it should be treated as a hypothesis for testing.

8. Sedentary Behaviour

Sedentary behaviour is now conceptualised as a distinct exposure rather than simply the absence of physical activity, and the general-population evidence is strong: prolonged sitting is associated with all-cause and cardiovascular mortality and incident type 2 diabetes in a dose-response fashion, with the association partly independent of moderate-to-vigorous activity (Patterson *et al.*, 2018). Working professional students may experience substantial sedentary exposure because sitting accumulates across domains—at a desk at work, during commuting, in evening classes and while studying on screens—and because the boundary between these domains is porous in remote and hybrid arrangements. Cross-sectional evidence in university students links sedentary patterns with socio-ecological correlates at the institutional, social and individual levels (Möckel *et al.*, 2026) and associates sedentary behaviour with poorer dietary patterns (Akter & Hossain, 2024), while cohort data show that sedentary time differs systematically across student subgroups (Savage *et al.*, 2024). Sensor-based systematic review evidence further supports associations between sedentary behaviour and mental health in university students, although the included studies are predominantly cross-sectional (Weng & Wang, 2026).

Two implications follow, both conditional on the indirectness of the evidence. First, intervention design should treat increasing activity and interrupting prolonged sitting as separate objectives, because they target different exposures and neither substitutes for the other. Second, the relevant target is the distribution of movement across the whole day rather than a single bout of exercise added to an otherwise static schedule. Direct measurement of sitting in employed students is

scarce, and accordingly the evidence-strength label applied to this domain in Section 15 is deliberately conservative.

9. Dietary Behaviour

Dietary behaviour in this population is best understood as a function of time, cost and access rather than of nutritional knowledge. Irregular and rotating schedules disrupt meal planning and food preparation, compress eating windows, and shift consumption towards convenience and takeaway foods; students on limited incomes are simultaneously constrained by cost, and those working long shifts may have little control over when or where they eat. Cross-sectional evidence in university students links sedentary and dietary patterns (Akter & Hossain, 2024), while broader nutrition research provides a rationale for considering diet as a factor associated with mental as well as physical health: reviews in nutritional psychiatry describe associations between diet quality and mental well-being (Firth *et al.*, 2020; Marx *et al.*, 2017), and randomised evidence shows that whole-of-diet interventions can reduce symptoms of depression and anxiety (Opie *et al.*, 2015).

The practical consequence is that dietary recommendations for working professional students must be designed for the schedules they actually have. Advice to prepare fresh meals daily may be impractical during a week of night shifts and concurrent assessments, whereas guidance organised around workplace and campus food environments, portable and low-preparation options, and protection of a defined eating window may be. It must be noted, however, that neither the nutritional-psychiatry evidence nor the randomised intervention evidence was generated in working professional students, and even the student-specific evidence is observational and cross-sectional; conclusions about this population's diet therefore rest substantially on extrapolation.

10. Sleep and Recovery

Sleep is the domain in which the structural competition between work and study is most visible, because paid work and evening classes draw on the same finite hours. Direct evidence from working students supports this: in a study of working college students in Brazil, sleep duration was associated with working hours, work schedule and attendance at evening classes (Nagai-Manelli *et al.*, 2012). In the wider student literature, sleep and physical activity are associated, but the evidence base is dominated by

cross-sectional designs and self-report instruments (Memon *et al.*, 2021); chronotype and the timing of academic obligations influence academic performance (Figueiredo & Kulari, 2024); and poor sleep quality is associated with lower academic performance in health-discipline students whose programmes include shift and clinical commitments (Almalki *et al.*, 2025; Okur *et al.*, 2026). Sensor-based review evidence in university students also supports associations between sleep and mental health (Weng & Wang, 2026).

Recovery, however, cannot be reduced to sleep duration. Psychological detachment from work and study, predictable schedules, and the availability of genuinely restorative intervals are all distinct components, and a student who obtains seven hours of sleep between a late shift and a morning class may still be insufficiently recovered because the sleep is mistimed and the intervening interval is not restorative. This distinction carries an important measurement implication: interventions and studies that record only sleep duration will miss a substantial part of the recovery process, which is why Section 16 recommends objective sleep assessment alongside measures of psychological detachment. As with activity and diet, the working-student evidence is suggestive but limited in volume and design.

11. Stress, Burnout and Well-Being

This is the domain with the strongest and most direct evidence base, and it is the domain on which the review's confidence in the work-study mechanism principally rests. Work-study conflict has been associated with adverse health outcomes and operates as an interaction between the demands and resources of employment and education rather than as a simple correlate of hours worked (Owen *et al.*, 2018). Conflict between paid work and study predicts burnout and reduced satisfaction with university life (Lingard, 2007), and working students describe a persistent sense of incompatibility between employment, study and social participation, with reduced study time and elevated stress (Grozev & Easterbrook, 2022). Most directly, burnout and maladjustment have been demonstrated among employed students, providing specific evidence that occupational and academic demands should be assessed jointly (Drăghici & Cazan, 2022).

Broader higher-education research corroborates the pattern and extends it to mechanisms. Academic stress is correlated with poorer mental well-being across a range of student groups and is not confined to those with evident risk factors (Barbayannis

et al., 2022); systematic review evidence identifies the principal determinants of student mental health, including financial, academic and social factors (Campbell *et al.*, 2022); and psychological distress has been shown to co-occur with multiple risk behaviours including low activity, poor diet and substance use, which supports treating lifestyle behaviours as clustered rather than independent (Deasy *et al.*, 2014). Demands-resources extensions show that burnout risk is socially patterned (Rußmann *et al.*, 2026) and that distance-learning and on-campus students convert demands and resources into outcomes differently (Schnädter *et al.*, 2026). The consistent message is that well-being in this population is an emergent property of workload, lifestyle behaviour, support and recovery operating together, which is precisely why single-behaviour explanations are likely to underperform and why the framework below is specified as a system rather than as a list.

12. Interrelationship of Lifestyle Behaviours

The domains reviewed above are not independent, and treating them separately risks both misestimating their effects and misdesigning interventions. The most plausible pattern suggested by the literature is that work-study demands influence lifestyle behaviour indirectly, through reduced time availability, increased total sitting, and disruption of regular eating and sleeping schedules, and that these behavioural changes then interact with stress and recovery in a mutually reinforcing way: insufficient recovery raises perceived stress, which in turn reduces the likelihood of protective behaviour. Evidence that distress co-occurs with several risk behaviours (Deasy *et al.*, 2014) and that substitutable time-use patterns are associated with mental-health differences (Pennisi *et al.*, 2026) is consistent with this account, as is the finding that activity tracks with daily stress and recovery over time (Teuber *et al.*, 2024).

This pattern should nevertheless be described as a hypothesised system rather than a demonstrated pathway. Almost all of the available evidence is cross-sectional, which means the direction of association between work-study pressure and lifestyle deterioration cannot be established: it is equally consistent with the data that students with poorer well-being find work and study harder to manage. Reverse causation, common-method variance and unmeasured selection into employment all remain plausible. The framework presented next is therefore offered as a formal

representation of a mechanism that is plausible, partially supported and explicitly in need of longitudinal or interventional testing, and its function in this review is to make that mechanism falsifiable rather than to assert it.

13. Integrated Work–Study–Lifestyle Framework

The Integrated Work–Study–Lifestyle Framework (Figure 1) represents the health of working professional students as a consequence of the interaction between persons and their environments rather than as the product of individual choices made in a vacuum. It comprises five layers. Layer 1, contextual demands, contains occupational workload, academic workload, family and social obligations, economic pressure and technology-related demands; these set the conditions under which the student must operate. Layer 2, proximal mechanisms, contains work–study conflict and facilitation, resource availability, autonomy, support and recovery opportunity; these are the processes through which contextual conditions are translated into daily experience. Layer 3, lifestyle behaviours, contains physical activity, sedentary time, dietary pattern, sleep, digital-media limits and social engagement, and constitutes the modifiable behavioural layer. Layer 4, outcomes, contains psychological well-being, physical health, academic performance, occupational functioning and quality of life. Layer 5, protective moderators, contains supervisor support, institutional flexibility, social connection, self-efficacy, planning and coping skills, and operates across the preceding layers by weakening adverse and strengthening beneficial pathways.

Three specification decisions distinguish this framework from a simple pathway diagram, and each is intended to make the model testable. First, the causal claim is mediational rather than direct: contextual demands are proposed to affect outcomes through proximal mechanisms and lifestyle behaviours, so the model predicts that the demand–outcome association will attenuate when conflict and resource measures are included. Second, the framework is explicitly cyclical: outcomes in Layer 4 feed back into Layer 1, since poor academic performance may increase pressure to work additional hours while impaired health may reduce work capacity, and no cross-sectional design can capture this loop. Third, the provenance of each pathway is stated: the demand–conflict–strain sequence derives from role theory and the work–study conflict model with direct empirical support from working students (Lingard,

2007; Owen *et al.*, 2018; Grozev & Easterbrook, 2022); the demands–resources moderation derives from job and study demands–resources theory with recent empirical support (Rußmann *et al.*, 2026; Schnädter *et al.*, 2026); and the motivational and adult-learning components derive from self-determination theory and adult-learning principles (Ryan & Deci, 2020; Vansteenkiste *et al.*, 2020). The pathways linking specific lifestyle behaviours to specific outcomes, and the exact placement of protective moderators, are newly proposed by the present authors and are not yet empirically established for this population.

14. Discussion

The principal finding of this review is that the health and well-being of working professional students cannot be adequately explained by any single lifestyle behaviour. The literature points instead towards an interaction between occupational demands, academic workload, time availability, recovery opportunity and individual and social resources, with work–study conflict acting as the proximal mechanism through which contextual pressure is transmitted to behaviour and well-being. This interpretation is consistent with the integrated work–study model of Owen, Kavanagh and Dollard (2018), with the burnout and maladjustment findings reported specifically among employed students (Drăghici & Cazan, 2022), with evidence that conflict predicts both burnout and reduced satisfaction with university life (Lingard, 2007), and with the accounts of incompatibility reported by working students themselves (Grozev & Easterbrook, 2022).

The distribution of evidence across domains, however, is markedly uneven and this is itself a substantive result. The strongest and most direct evidence concerns work–study conflict, stress, burnout and well-being. Evidence for physical activity, sedentary behaviour and dietary behaviour is largely indirect, drawing on general student or adult populations, and in several instances on evidence whose design cannot support the causal reading sometimes placed upon it. Sleep shows a middle position, with a small number of direct working-student findings but a wider literature dominated by cross-sectional self-report.



Figure 1. The Integrated Work–Study–Lifestyle Framework. Schematic representation of the hypothesised model: contextual demands (Layer 1) are translated through proximal mechanisms of work–study conflict and facilitation and through resource availability (Layer 2) into lifestyle behaviours (Layer 3), which in turn shape well-being, health and academic and occupational outcomes (Layer 4); protective moderators (Layer 5) act across the sequence to weaken adverse and strengthen beneficial pathways. Solid pathways are supported by direct evidence from working-student or demands–resources studies; dashed pathways are proposed by the authors and remain to be tested. The model is presented as a testable conceptual framework and not as an empirically established causal pathway.

These differences in directness are not merely technical: they determine the confidence with which the framework's pathways can be asserted, and they are the reason that Section 15 labels several domains as extrapolated rather than established and that Section 3.6 states the criteria by which those labels were assigned. The practical implications follow from the mediational structure of the framework rather than from

the individual domains. If demands reach behaviour through conflict and resource loss, then interventions addressed only to behaviour—encouraging exercise, advising on diet, recommending sleep hygiene—will be weakly effective for students whose schedules remove the opportunity to act on such advice. The feasible set of strategies is therefore broader and more distributed than is usually acknowledged: short bouts of activity

and interruption of prolonged sitting that fit inside existing routines; dietary advice keyed to actual shift patterns and campus food environments; protection of a defined sleep window backed by predictable scheduling; and stress-management support delivered through institutional rather than individual channels. Crucially, the framework predicts that combining these components will outperform any single component, while also predicting that their effectiveness depends on the institutional and workplace conditions in which they are delivered. Because no direct trial evidence exists for multicomponent interventions in this population, this is a reasoned expectation derived from the model rather than a demonstrated effect.

The implications for Physical Education and university sport provision are specific. Institutions enrolling working professional students may need to offer activity opportunities that are scheduled outside standard working hours, delivered in short formats, accessible remotely where commuting is the binding constraint, and integrated with rather than competing against employment commitments. Employers contribute through the other side of the interface: predictable rosters, educational leave, and supervisory recognition of study obligations all function as resources within the framework and are plausibly more influential than any individually targeted behaviour change. These recommendations should be read as practical implications of the reviewed evidence rather than as validated intervention protocols.

Finally, the review sharpens the research agenda. Cross-sectional designs cannot distinguish whether work–study pressure degrades lifestyle behaviour or whether students with poorer well-being find work and study more difficult to manage, and the cyclical component of the framework is invisible to them. Progress requires designs that combine objective or validated measures of physical activity, sedentary time and sleep with measures of work intensity, schedule control, employment status, job–study congruence, work–study conflict and well-being; that observe students repeatedly across semesters and examination periods in order to capture seasonal peaks; and that test the mediational claims of the framework directly rather than assuming them. Studies should also disaggregate the working-student population, since samples that pool full-time and part-time workers, undergraduates and postgraduates, and shift and regular-schedule workers may average away effects that are substantial within subgroups.

15. Critical Synthesis and Evidence Strength

Assessing the state of the evidence requires explicit criteria, and this review uses four: the number of available studies; the consistency of their findings; directness, meaning whether participants were themselves employed students; and relevance and design quality, meaning whether measures, samples and designs permit inference about working professional students. The labels below follow from those criteria as defined in Section 3.6 and are qualitative judgements by the authors, not formal GRADE ratings. The overall picture is that the work–study mechanism is well supported, the stress and well-being consequences are well supported, and the behavioural domains are supported by evidence that is largely borrowed from other populations.

Three observations follow from this assessment. First, the domains with the weakest direct evidence are also those most frequently targeted by recommendations, which means that current advice to this population is considerably better grounded in general physiology than in data about these students. Second, the concentration of direct evidence in the conflict, stress and burnout domain means that the framework's central mechanism is the best-supported part of the model while its behavioural and outcome pathways are the least tested. Third, the absence of intervention evidence is not an argument against intervention but a specification of what remains unknown: it establishes that effectiveness in this population is currently a hypothesis rather than a finding. The resulting qualitative evidence-strength ratings across the reviewed domains are summarized in Table 4.

16. Research Gaps and Rationale

The most consequential gap concerns population definition. Working professional students remain underrepresented in integrated lifestyle research relative to general university students, and where they are included, employment status is often recorded as a covariate rather than used to stratify the sample. Because employment intensity, employment status, shift structure, level of study, caregiving load and job–study congruence all plausibly alter the demand–resource balance, future studies should report and disaggregate these variables rather than pooling them, since samples that combine them may conceal subgroup effects of practical importance.

Table 4. Qualitative evidence strength by domain

Domain	Qualitative evidence strength	Reason for judgement
Work–study conflict	Moderate–Strong	Multiple working-student studies and established conceptual models; consistent findings across designs
Stress, burnout and well-being	Moderate–Strong	Consistent evidence across working and general higher-education populations, including direct burnout findings among employed students
Physical activity	Moderate	Strong and consistent broader evidence, including meta-analytic student evidence; few studies specific to employed students
Sleep and recovery	Moderate	Direct working-student evidence on work schedule and sleep, plus wider student evidence; mostly cross-sectional and self-reported
Sedentary behaviour	Limited–Moderate	Strong general health evidence; limited direct measurement in working students
Dietary behaviour	Limited–Moderate	Relevant evidence exists but is heterogeneous and rarely working-student-specific; intervention evidence comes from other populations
Integrated lifestyle model	Limited–Moderate	Conceptually coherent and partially supported, but few studies measure all domains simultaneously
Multicomponent intervention	Limited	Clear rationale but no direct intervention evidence in working professional students

A second gap concerns design. Much of the available evidence is cross-sectional, which prevents causal inference and leaves reverse causation unresolved; longitudinal designs are needed that follow students across semesters and examination periods, when demands peak, rather than sampling a single point in the academic year. A third gap concerns measurement: self-reported physical activity, sedentary time and sleep are susceptible to recall and social-desirability bias, and objective measurement—accelerometry, inclinometry or validated diaries—should be incorporated alongside self-report where feasible, together with measures of psychological detachment rather than sleep duration alone. Fourth, the domains are almost always studied in isolation, so that the interdependencies central to the framework remain untested; designs capable of modelling them jointly, whether through compositional approaches or through repeated measurement of several domains, are required. Fifth, no multicomponent intervention trial has been conducted specifically in working professional students, and trials should therefore combine activity, sedentary-behaviour, dietary, sleep and stress-management components with scheduling-level changes and should measure institutional and workplace factors as modifiers rather than as background. Finally, working professional students in

India represent a substantial and particularly relevant group for such research, given the scale of professional and postgraduate enrolment among employed adults and the distinctive combination of commuting burden, family obligation and workplace scheduling that characterises the context, and context-appropriate and feasible intervention designs should be developed and tested for it.

17. Practical Implications

The recommendations that follow are derived from the framework and the reviewed evidence rather than from demonstrated intervention effects, and they are organised by the level at which action is possible. At institutional level, the evidence supports flexible enrolment and attendance options where programmes permit them, examination and assessment scheduling that avoids clustering, and the availability of counselling, academic advising and peer mentoring; because synchronous scheduling competes directly with employment hours, timetable design is itself a health-relevant decision. At employer level, predictable rosters, educational leave and supervisory recognition of study obligations function within the framework as resources that buffer demand, and they are likely to be more consequential than advice directed at individual

behaviour. At programme level, the design of active-learning and online components should consider total screen exposure rather than optimising flexibility alone, since digital provision both relieves and creates demands.

At the individual level, the evidence supports movement distributed across the day rather than a single exercise bout, interruption of prolonged sitting, practical dietary planning organised around actual work schedules, protection of a defined sleep window, and deliberate boundaries around digital availability. The central practical recommendation is one of coordination: individual strategies operate against a background of institutional and organisational constraint, and where the schedule removes the opportunity to act on advice, adherence should be expected to be low regardless of motivation. Interventions that address behaviour while leaving the structural determinants untouched are therefore unlikely to succeed, and evaluation of any such intervention should measure the institutional and workplace conditions alongside the behavioural outcomes.

18. Strengths of the Review

The principal strength of this review is its population specificity: it addresses working professional and employed students rather than conventional university students generally, and it maintains that focus even where the available evidence forces a wider frame. Its second strength is the breadth of the framework, which integrates behavioural domains with the contextual determinants—occupational, academic, digital, familial and financial—that the literature usually treats separately. Third, the review is explicit about the provenance of its evidence, distinguishing direct from indirect findings throughout and converting the usual limitation of narrative reviews into a stated classification; this is supported by a methodology section that reports search dates, representative Boolean strings, eligibility criteria, screening procedure, approximate yield and the criteria for evidence-strength labels, in line with SANRA. Fourth, the review abstains from causal language, separating the reasons why intervention research is needed from claims about intervention effectiveness, and it offers the Integrated Work–Study–Lifestyle Framework as an explicitly testable model with stated provenance for each pathway, which allows it to be empirically tested and potentially refuted rather than presented as an established mechanism.

19. Limitations

Five limitations should qualify the conclusions. The review is narrative rather than systematic, so quantitative pooling of effect sizes has not been performed and the synthesis is not comprehensive in the sense that an exhaustive systematic search would be; although the search strategy is reported in detail, approximately sixty records were assessed in full text and thirty-nine sources were retained for the synthesis, with relevance decisions involving author judgement rather than a fully reproducible screening process. Second, the literature it synthesises is heterogeneous in population definition, outcome measurement and design, and a substantial proportion is observational, so causal inference is not possible; the hypothesised pathways of the framework accordingly remain untested. Third, direct evidence from working professional students is sparse in several domains—particularly sedentary behaviour, dietary behaviour and physical activity—and in those areas the review necessarily relies on evidence from general student and adult populations, which may not transfer. Fourth, because the framework is new, its components have not been validated in a single sample, and readers should regard it as a research instrument rather than as a description of established relationships. Finally, the search was restricted to English-language publications, which may underrepresent evidence from non-Anglophone contexts including India, and pre-prints were largely excluded, with the single exception noted in Section 3.4.

20. Conclusion

Working professional students are a distinctive group in higher education because their study is embedded within the demands of paid employment and often of caregiving, so that their health behaviour is shaped by the conditions this arrangement creates rather than merely by the choices it permits. The literature reviewed here indicates that the working-student lifestyle is formed through the interaction of work and study demands, available resources, lifestyle behaviours and social support. Physical activity, sedentary behaviour, diet and sleep are each relevant, yet none is adequately interpretable in isolation from schedule, workload, technology use, financial constraint and psychological stress.

Employment should not, however, be assumed to be uniformly harmful. Where work and study schedules are compatible, where the job matches the

field of study and where support is adequate, employment supplies income, practical skills and professional development that function as resources and may buffer a heavy combined load. The more productive question is therefore not whether working students are worse off, but how work and education can be organised so that students retain the capacity to recover and to participate successfully in both roles.

Future research should test intervention-oriented models in disaggregated working-student groups, using longitudinal designs, objective measurement of activity, sitting and sleep, and attention to institutional and workplace conditions that determine whether behavioural advice can be acted upon. The Integrated Work–Study–Lifestyle Framework is offered to organise that effort; it is stated clearly enough to be tested and should be revised as evidence accumulates.

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