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REVIEW

Integrated Workplace Well-Being: A Biopsychosocial Systems Framework for Behavioural Health

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ABSTRACT

Workplace health is increasingly shaped by complex interactions among physical, psychosocial, and organisational factors, challenging traditional occupational health models that primarily emphasise hazard identification and control. Although such approaches have contributed to reductions in physical risk, they remain limited in addressing behavioural and psychosocial determinants, including stress, cognitive load, and organisational dynamics. This study proposes an integrated conceptual framework that reconceptualises workplace well-being as a systemic outcome emerging from interactions within a behavioural health system. Grounded in the biopsychosocial model and systems thinking, the framework integrates physical, psychological, and social determinants across multiple levels, including individual, team, and organisational contexts. It positions behavioural processes such as perception, stress appraisal, and coping as central mediating mechanisms linking workplace conditions to health and performance outcomes. In addition, the framework incorporates feedback dynamics to explain how reinforcing and balancing processes shape behavioural responses, well-being, and organisational functioning over time. By extending established occupational health and psychosocial risk frameworks, including ISO 45003 and Total Worker Health perspectives, the model provides a structured systems-based lens for integrating behavioural health into workplace design and management. The framework contributes a unified conceptual structure that enhances understanding of multi-level interactions and offers a foundation for future empirical validation and application. It has practical relevance for improving employee well-being, organisational resilience, and sustainable performance in increasingly complex and dynamic work environments.

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1. Introduction

Workplaces are undergoing profound transformations driven by globalisation, technological change, demographic transitions, and evolving sociocultural expectations. These shifts have fundamentally altered both the nature of work and the relationship between work and worker health, with psychosocial hazards and behavioural health outcomes emerging as central concerns in contemporary occupational health discourse[1,2]. While traditional occupational health systems have achieved substantial success in controlling physical and chemical hazards, they are increasingly challenged by the complex interplay of psychological, social, and behavioural factors that shape worker well-being and organisational performance.

The historical evolution of occupational safety and health reflects this transition from a narrow, hazard-centric paradigm toward more integrated and holistic perspectives. As illustrated in **Figure 1**, occupational health has progressed from early concerns with physical exposures and industrial safety toward broader considerations of stress, organisational dynamics, and, more recently, worker well-being and sustainability[3]. This trajectory underscores a growing recognition that workplace health cannot be fully understood through isolated risk factors, but must be examined as a function of interacting system components.

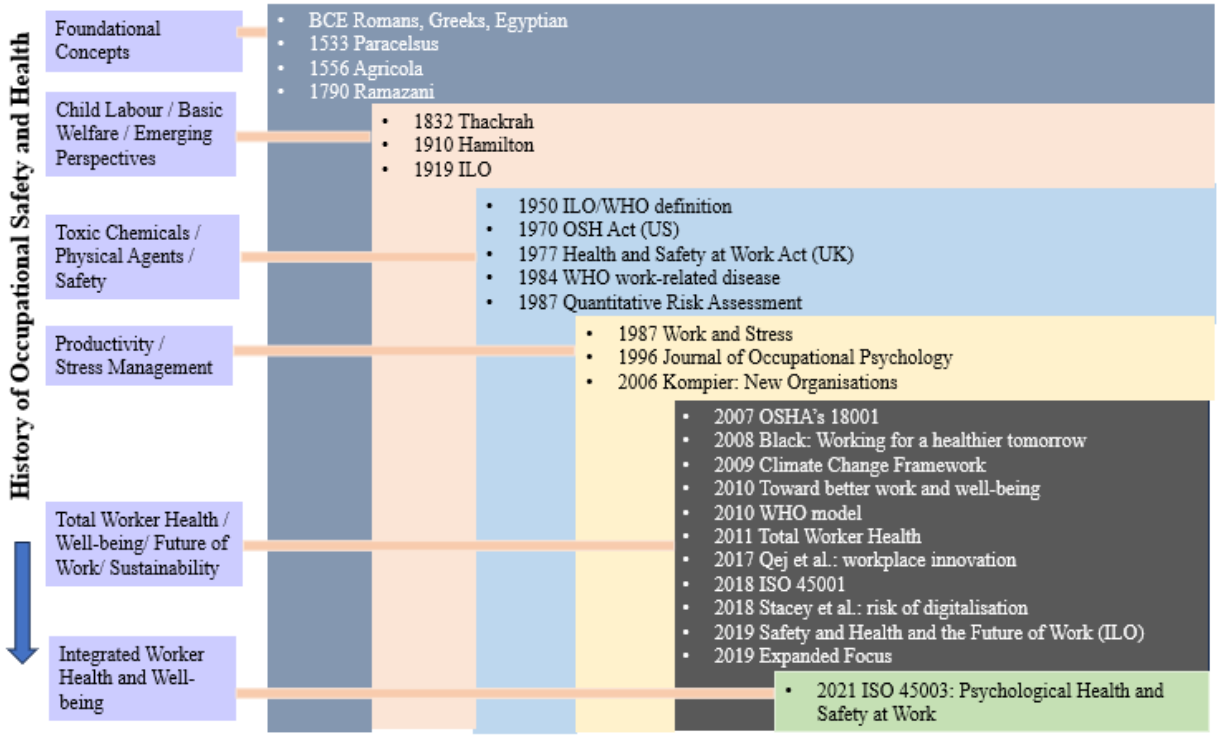

Figure 1. Major Eras of Occupational Safety and Health (Adapted from Schulte and Sauter[3]).

Despite these advances, conventional occupational health and safety (OHS) approaches often focus on tangible, physical risks (e.g., machinery, chemicals, ergonomics). This limitation results in an inadequate accounting for psychosocial risk factors, such as excessive workload, role ambiguity, low job control, and insufficient social support, which are increasingly recognised as primary drivers of work-related stress, burnout, and mental health issues[4,5]. Importantly, psychosocial risks are recognised as major rising contributors to occupational disorders, accounting for 50–60% of all skipped working days and considerably contributing to disability, injury, and health disparities. These hazards are com-

monly classified as a fourth category within occupational risk frameworks, alongside physical, chemical, and biological factors, and are driven by suboptimal work design, organisational arrangements, and management practices, including high job demands, insufficient autonomy, and workplace bullying[6].

1.1. Problem Context

Existing OSH systems are predominantly structured around the control of physical, chemical, and biological hazards within compliance-oriented frameworks. While effective in reducing immediate injuries and accidents, they inadequately capture psychosocial risks, resulting in incomplete risk management[7]. Such siloed approaches are increasingly ineffective in modern work environments. Contemporary organisational challenges require an integrated understanding of how behavioural, cognitive, and emotional processes shape workers' perceptions of demands, interpretation of risks, and responses to organisational conditions[8].

Psychosocial hazards, in contrast to physical exposures, arise from work design, organisational culture, and management practices. High job demands combined with low control, inadequate support, unclear roles, and poor communication have been consistently linked to elevated stress, impaired psychological functioning, and reduced overall health[9]. These conditions not only affect individual well-being but also influence behavioural outcomes such as safety compliance, decision-making, and engagement, thereby linking psychosocial risk directly to organisational performance[10].

The growing prevalence of work-related stress, anxiety, and depression across sectors further highlights the limitations of traditional frameworks. These conditions contribute to increased absenteeism, presenteeism, turnover, and productivity loss, imposing substantial economic and social burdens[10]. Moreover, emerging forms of work. characterised by digitalisation, remote arrangements, and precarious employment (algorithmic precarity) introduce new patterns of demand and uncertainty that are not adequately addressed by conventional hazard-control models[11]. Algorithmic precarity refers to conditions of employment instability and uncertainty arising from algorithmic management systems, where work allocation, evaluation, and control are mediated by digital platforms and automated decision-making processes.

1.2. Conceptual Gap

Despite growing recognition of psychosocial risks, current OHS frameworks remain weakly integrated with behavioural health domains, resulting in fragmented approaches to workplace well-being. In practice, these domains are often managed through separate organisational functions, limiting their ability to operate as a coherent system.

A further conceptual limitation lies in the inconsistent distinction between wellness and well-being. Wellness is generally treated as an individual-level construct focused on lifestyle and behavioural practices, whereas well-being reflects a multi-dimensional system outcome shaped by organisational, psychosocial, and environmental conditions. This ambiguity contributes to fragmented interventions that target individual behaviour without adequately addressing system-level determinants.

In addition, existing frameworks frequently emphasise discrete interventions (e.g., safety controls, wellness programmes, or mental health initiatives) while underrepresenting the dynamic interactions among physical, psychological, and organisational determinants. As a result, key processes such as stress appraisal, cognitive load, and behavioural adaptation are insufficiently embedded within OHS system models. This highlights the need for a systems-oriented approach that captures interdependencies and temporal interactions among determinants of workplace well-being.

1.3. Aim and Contribution

This study proposes an integrated biopsychosocial systems framework that conceptualises workplace health as a dynamic system linking physical, psychological, social, and behavioural determinants across multiple levels.

The framework builds on established approaches such as TWH® and ISO 45003, while extending them by explicitly organising behavioural processes within a systems-based architecture incorporating hierarchical structure and feedback interactions. Rather than focusing on isolated programmes or compliance-based interventions, it emphasises the interdependence of determinants and behavioural mechanisms within a unified structure.

By integrating determinants, behavioural processes, and outcomes, the framework conceptualises workplace well-being as an emergent system property shaped by multi-level

interactions over time. This synthesis addresses limitations in existing models related to fragmentation, linear causality, and partial operationalisation of behavioural and psychosocial processes in occupational health systems.

2. Reframing Workplace Health as Behavioural Well-Being

The evolution of workplace health reflects a shift from a narrow focus on physical hazards toward a broader understanding of health as a multidimensional and system-dependent outcome. Traditional OHS frameworks have been effective in reducing injuries and occupational diseases through the control of physical, chemical, and biological hazards, particularly within structured risk management systems. However, contemporary work environments are increasingly shaped by complex interactions among psychosocial, organisational, and behavioural factors that are not adequately captured within hazard-centric paradigms. This necessitates a reframing of workplace health toward an integrated model of behavioural well-being grounded in biopsychosocial and systems perspectives.

2.1. Limitations of Hazard-Centric Approaches

Established OHS frameworks are predominantly structured around linear risk management models, where hazards are sequentially identified, assessed, and controlled, often with limited consideration of dynamic system interactions and behavioural processes. While effective for tangible exposures, these approaches exhibit important limitations in addressing current workplace challenges.

First, they tend to prioritise physical risks while underrepresenting psychosocial hazards such as workload, job insecurity, role ambiguity, and organisational support. These factors are now recognised as major determinants of mental health, contributing to stress and burnout [1,12]. Second, traditional models assume relatively direct relationships between exposure and outcome, overlooking the mediating role of perception, cognition, and coping. Worker responses to similar conditions can vary significantly depending on psychological and social contexts [13,14]. Third, these frameworks are predominantly reactive, emphasising incident prevention and compliance rather than proactive promotion of well-being and resilience, limiting their effectiveness in addressing emerging risks associated with digitalisation and changing work patterns [15].

2.2. Integration Needs across OSH and Behavioural Health

The growing recognition of psychosocial risks has led to increasing calls for integration across occupational health, safety, and behavioural health domains. In practice, however, these functions remain fragmented across domains, with occupational health centred on medical aspects, OSH on hazard control, and organisational mechanisms addressing well-being initiatives in parallel rather than in an integrated manner.

Such fragmentation limits the ability to understand and manage workplace health holistically, particularly because behavioural and psychological processes mediate the relationship between work conditions and outcomes. Classic models such as the demand–control framework and effort–reward imbalance illustrate that outcomes depend on the interaction between demands and resources rather than on single exposures [16,17].

Efforts to bridge these domains are reflected in initiatives such as the TWH ® program, which integrates hazard protection with health promotion, and regulatory approaches associated with OSHA. While these models represent important advances, they often do not explicitly incorporate behavioural mechanisms or system dynamics, limiting their capacity to capture the full complexity of workplace well-being.

2.3. Workplace Well-Being as a Systemic Outcome

Workplace well-being is more appropriately understood as a dynamic system-level outcome arising from interactions among physical, psychological, and organisational conditions rather than as a discrete endpoint. It arises from the interaction of physical conditions, psychological processes, and social and organisational structures. This perspective aligns with the biopsychosocial model proposed by George L. Engel [18], while extending its application to organisational contexts.

Here, *wellness* is treated as an individual behavioural domain, whereas *well-being* reflects a multi-dimensional system outcome shaped by organisational conditions, including work design, leadership, and organisational climate. Constructs such as psychosocial safety climate further illustrate how organisational priorities influence psychological health outcomes[19]. Psychosocial safety climate is commonly operationalised using validated instruments such as the PSC-12 scale, which assesses organisational priorities, management commitment, and communication regarding psychological health and safety. More broadly, well-being may be understood as a summative construct reflecting the overall quality of workers' lives, across both work and non-work domains, including OSH dimensions, and serving as a key determinant of productivity at individual, organisational, and societal levels[20].

From a systems perspective, workplace conditions and behavioural responses interact over time to influence resilience, engagement, stress, and performance. This framing shifts the focus from individual responsibility toward system-level determinants and their interactions.

2.4. Positioning with Existing Models and Standards

The proposed conceptualisation extends existing frameworks while addressing their limitations. The TWH® program integrates safety and health promotion but remains largely programmatic, while regulatory approaches such as OSHA and ISO 45001 focus on structured, compliance-driven hazard control. ISO 45003 advances the recognition of psychosocial risks, yet remains centred on risk management rather than system-level well-being.

More broadly, integrative perspectives such as the biopsychosocial model proposed by George L. Engel have been critiqued for their conceptual breadth and limited operational specificity. While such models provide valuable holistic framing, they do not explicitly define the mechanisms, hierarchical relationships, or dynamic interactions required for application within organisational systems.

In contrast, the proposed framework functions as a conceptual integrator by structuring interactions across physical, psychosocial, and organisational domains, explicitly incorporating behavioural processes, and representing system dynamics through feedback mechanisms. In doing so, it extends existing approaches by enhancing operational clarity and expanding the focus from risk prevention to well-being, resilience, and organisational performance. It complements existing models by providing a unified behavioural health systems perspective. This positions the framework as an operational extension of integrative models, addressing long-standing concerns regarding their practical applicability.

3. Theoretical and Conceptual Foundations

The transition from traditional occupational health toward integrated workplace well-being requires a theoretical foundation capable of capturing the complex, dynamic, and multi-level nature of work systems. This study draws on four complementary perspectives, biopsychosocial theory, systems thinking, behavioural health dynamics, and sustainability science, to conceptualise workplace well-being as a systemic outcome of interacting determinants.

3.1. Biopsychosocial Model

The biopsychosocial model provides a foundational lens for understanding health as the outcome of interacting biological, psychological, and social processes rather than a purely biomedical phenomenon[18]. In workplace contexts, biological factors include exposure to hazards and physiological stress responses; psychological factors encompass cognition, perception, and emotional regulation; and social factors involve organisational culture, leadership, and interpersonal relationships.

These dimensions interact dynamically. For example, high job demands may trigger stress appraisal processes that lead to physiological strain, while supportive environments can buffer these effects and promote adaptive functioning. This perspective reframes workplace health as a continuous interactive process, where outcomes such as well-being, burnout, and resilience arise from the interplay of multiple determinants across levels.

3.2. Systems Thinking

While the biopsychosocial model identifies key domains, systems thinking explains how these domains interact over time within complex organisational environments.

Workplaces are conceptualised as adaptive systems characterised by interdependencies and non-linear interactions [21].

Feedback mechanisms are central to this perspective. For instance, increased workload may elevate stress and reduce performance, generating further workload pressures and reinforcing adverse cycles. Conversely, supportive conditions can stabilise and improve system functioning. Systems thinking also emphasises cross-level interactions, where organisational decisions influence individual behaviour, and aggregated individual outcomes shape organisational performance.

3.3. Behavioural Health Dynamics

Behavioural health dynamics provide the critical link between workplace conditions and outcomes by explaining how individuals perceive, interpret, and respond to their environment. Stress is conceptualised as a process involving cognitive appraisal and coping, whereby individuals evaluate whether demands exceed their resources [13].

Cognitive load further influences these processes by affecting attention, decision-making, and situational awareness, particularly in complex or high-risk environments. High demands without adequate resources can impair performance and increase vulnerability to errors and psychological strain [14].

Behavioural responses, including coping strategies, safety practices, and engagement, ultimately shape both health and performance outcomes. These processes are embedded within organisational contexts and are influenced by leadership, communication, and support systems. Workplace well-being is therefore co-produced through continuous interaction between individual behaviour and system conditions, reinforcing its positioning within applied behavioural health.

3.4. Sustainability and Organisational Outcomes

Integrating sustainability extends workplace well-being beyond risk prevention toward long-term resilience and system viability. It highlights the interdependence of worker health, organisational performance, and broader socio-environmental systems, with evidence linking poor well-being to absenteeism and turnover, and positive well-being to engagement and productivity [22]. Aligned with global sustainability frameworks, workplace well-being functions both as a health outcome and a strategic resource. It also supports anticipatory and adaptive capacities, enabling organisations to respond to evolving challenges and sustain performance over time.

3.5. Framework Development Rationale

The selection of theoretical perspectives and conceptual components within the proposed framework was guided by their empirical grounding, relevance to occupational and organisational contexts, and applicability to workplace well-being and behavioural health systems. Priority was given to theories and constructs widely recognised within occupational health, psychosocial risk management, behavioural science, systems thinking, and organisational safety literature. The framework was therefore developed as a theoretically integrative model intended to capture multi-level interactions influencing workplace well-being.

4. Theoretical Foundations and Systems Determinants of Workplace Well-Being

Workplace well-being arises from interactions among physical, psychological, organisational, and contextual determinants operating across multiple system levels [18,23]. Together, these determinants shape cognitive, behavioural, and organisational processes that influence health, safety, and performance outcomes.

4.1. System Inputs: Physical, Psychological, and Organisational Determinants

Physical and environmental determinants constitute the foundational layer of the work system, encompassing workplace hazards, ergonomic conditions, workload intensity, and environmental quality. These factors directly influence physiological strain and indirectly affect cognitive functioning through fatigue, attention depletion, and mental workload. Empirical evidence links poor environmental conditions and excessive workload with reduced performance efficiency and increased occupational risk [24]. Emerging challenges such as climate stressors and technologically mediated work

environments further intensify these demands, reinforcing their role as primary system inputs.

Psychological determinants represent internal cognitive and affective processes, including stress perception, emotional regulation, motivation, and cognitive appraisal. Stress responses are shaped not only by external demands but by appraisal processes in which individuals evaluate demands relative to coping resources [13,25,26]. High cognitive load environments can impair attention, working memory, and decision-making, contributing to burnout and reduced psychological resilience over time [14].

Social and organisational determinants encompass leadership, culture, communication, job design, and social support structures. These factors shape perceived control, relational climate, and psychological safety. The concept of psychosocial safety climate highlights the role of organisational priorities in protecting mental health, with stronger climates consistently associated with improved well-being outcomes [19]. Organisational justice, trust, and inclusivity further influence how employees interpret workplace conditions and respond behaviourally.

External contextual determinants, including regulatory frameworks, technological change, and economic pressures, operate as higher-order system constraints that indirectly shape workplace conditions and resource availability, influencing long-term organisational adaptability and sustainability [23,27]. To synthesise these multidimensional determinants and their functional roles within the workplace system, **Table 1** presents an integrated interaction matrix linking determinants, mechanisms, and outcomes.

Table 1. Determinants and Interactions Matrix for Workplace Well-Being.

Category	Key Elements	Mechanism	Outcomes
Physical & Environmental	Hazards, ergonomics, workload, environmental quality	Influences physiological load, fatigue, and cognitive functioning	Strain, injury, errors, reduced productivity
Psychological	Stress, cognition, emotion, motivation, coping	Shapes perception, appraisal, and individual response	Burnout, psychological strain, variability in performance
Social & Organisational	Leadership, culture, support, job design, communication	Shapes perceived control, norms, and relational climate	Stress reduction or escalation, engagement, retention
Behavioural	Coping, engagement, safety behaviour, risk perception	Response to perceived demands and resources	Risk mitigation or amplification, performance variation
External Context	Regulation, economy, technology	Shapes working conditions and resource availability	Indirect effects on well-being and organisational sustainability

4.2. Mediating Processes: Cognitive Appraisal and Behavioural Regulation

Workplace determinants influence well-being through mediating cognitive and behavioural processes. Central to this mechanism is cognitive appraisal, through which individuals evaluate the balance between job demands and coping resources [13,25]. These appraisals shape emotional responses, coping strategies, and behavioural adaptations in the workplace.

Behavioural responses such as safety compliance, engagement, coping strategies, and risk-taking behaviour act as key mediators between system inputs and outcomes. Depending on contextual conditions and available resources, these behaviours may either mitigate risk or amplify vulnerability. These processes continuously adapt in response to workplace conditions and prior outcomes [28,29].

4.3. System Dynamics: Feedback Loops and Non-Linear Behaviour

Workplace systems evolve through feedback mechanisms that link outcomes back to system inputs, generating reinforcing and balancing dynamics over time. Reinforcing feedback loops amplifies existing conditions; for example, sustained workload pressure may increase fatigue, reduce efficiency, and further intensify workload accumulation [30]. In contrast, balancing feedback loops stabilise system functioning through adaptive responses such as organisational support and recovery mechanisms [31].

Consequently, small changes in workplace conditions may produce disproportionate effects depending on organisational context and system state [32]. As a result, workplace well-being cannot be understood as a linear output but as an evolving system condition shaped by continuous reciprocal interactions [23,33].

4.4. Emergent Multi-Level Outcomes

The interaction of system inputs, mediating processes, and feedback loops gives rise to emergent workplace well-being outcomes that cannot be reduced to any single determinant. These outcomes reflect the cumulative behaviour of interconnected individual, team, organisational, and contextual processes [19,34].

At the individual level, appraisal and behavioural regulation shape stress and performance outcomes. At the team level, coordination and communication patterns influence collective functioning. At the organisational level, leadership and structural arrangements define resource distribution and operational constraints. External contextual forces further shape organisational adaptability and resilience [23,27].

Together, these interactions shape outcomes such as well-being, engagement, performance variability, and occupational health status. Workplace well-being therefore represents a dynamic emergent property of the system rather than a fixed endpoint, continuously shaped by evolving interactions across levels and time [28].

5. Integrated Biopsychosocial Workplace Well-Being Framework

This study proposes an Integrated biopsychosocial workplace well-being Framework that conceptualises workplace health as an interactive system linking physical, psychological, and organisational determinants with behavioural and health outcomes. Grounded in the biopsychosocial model, the framework integrates occupational health, safety, and behavioural health into a unified conceptual architecture [18,21]. **Figure 2** illustrates the integrated structure and relationships within the proposed framework.

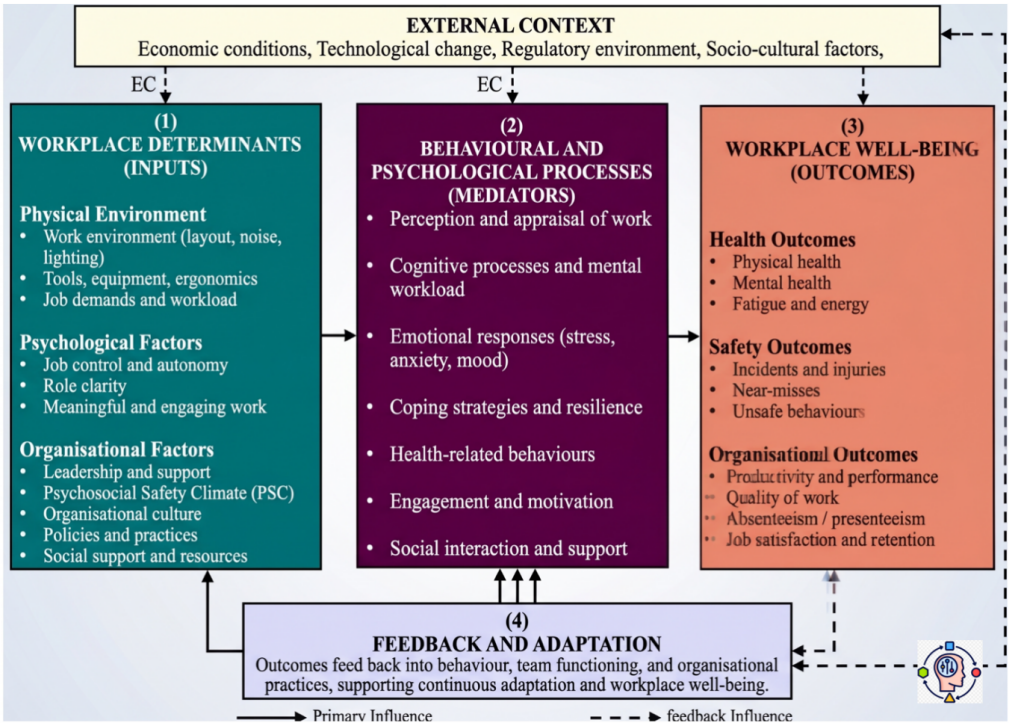

Figure 2. Integrated Workplace Well-Being Framework showing inputs, behavioural processes, outputs, and feedback loops within an external context.

The framework conceptualises workplace well-being as a dynamic system in which organisational, psychosocial, physical, and contextual conditions interact through behavioural and cognitive processes to produce multi-level outcomes. **Figure 2** illustrates how system inputs influence behavioural responses, which subsequently shape health, safety, and organisational outcomes. Feedback mechanisms further indicate that these outcomes may reinforce or modify subsequent workplace conditions over time, reflecting the adaptive and non-linear nature of workplace systems.

To minimise conceptual selection bias, priority was given to theories and frameworks demonstrating substantial empirical support and relevance to occupational, psychosocial, and organisational health contexts.

5.1. Framework Architecture

The framework is structured into four interconnected components: external context, inputs, behavioural processes, and outputs. The external context comprises regulatory conditions, socio-economic factors, and technological change, which shape organisational operating environments. Organisational context is embedded within this layer through leadership practices, governance structures, and work design.

Inputs consist of three domains: physical conditions (hazards, ergonomics, environmental factors), psychosocial conditions (workload, autonomy, and social support), and organisational structures (policies, resources, and management systems). These inputs define the conditions under which work is performed and influence behavioural responses.

These conditions are processed through behavioural dynamics, involving perception, stress appraisal, and coping responses, consistent with stress-coping theory [13]. This behavioural layer mediates how workplace conditions are interpreted and acted upon.

Outputs occur at multiple levels and include health outcomes (stress, burnout, well-being), behavioural outcomes (safety behaviour, engagement, compliance), and organisational outcomes (productivity, resilience, error rates). Interactions among components enable outcomes to influence subsequent system conditions, reflecting reciprocal system relationships.

5.2. Behavioural Integration

Behavioural processes function as the central mediator linking workplace conditions to outcomes. Individuals interpret demands through cognitive load, perception, and appraisal processes, which shape behavioural responses such as coping, engagement, and safety behaviour.

This aligns with behavioural and stress theories, where outcomes depend on cognitive appraisal and coping capacity [13,14]. The framework therefore positions behaviour as the key interface between system conditions and health outcomes.

5.3. Functional System Domains

The framework integrates three functional domains operating across workplace systems: preventive, promotive, and adaptive. Preventive processes reduce exposure to physical and psychosocial risks. Promotive processes enhance engagement and well-being. Adaptive processes support organisational learning and adjustment under changing conditions. Collectively, these domains support an integrated and balanced approach to workplace health and performance [21].

5.4. Positioning within Existing Frameworks

The proposed framework aligns with ISO 45001, ISO 45003, and the TWH® approach while extending them through the explicit integration of behavioural processes within a unified biopsychosocial systems structure. Existing frameworks primarily emphasise compliance, risk management, or health promotion, whereas behavioural mediation and system-level feedback dynamics remain limited or implicit.

In contrast, the proposed framework explicitly incorporates behavioural processes and feedback-driven interactions as core components of system functioning, thereby enabling a more integrated representation of workplace well-being as a dynamic, multi-level system outcome.

Table 2 presents a conceptual positioning of the proposed framework in relation to ISO 45003, TWH®, and OSHA-based approaches across key analytical dimensions. These include primary focus, approach type, role of behavioural processes, treatment of system dynamics, level of integration, conceptualisation of well-being, operational orientation, and representation of organisational determinants. The comparison highlights differences in emphasis and structure rather than empirical superiority. While existing frameworks primarily focus on risk management, compliance, or health promotion, the proposed framework integrates behavioural processes and feedback dynamics within a multi-level biopsychosocial systems perspective. This positioning clarifies how the proposed model synthesises and extends existing approaches by offering a more explicitly structured representation of behavioural and system interactions.

Table 2. Conceptual Positioning of the Proposed Framework in Relation to Existing Models.

Dimension	ISO 45003	NIOSH TWH®	OSHA-Based Approaches	Proposed Framework
Primary Focus	Psychosocial risk management	Integration of safety and health promotion	Regulatory compliance and hazard control	Integrated workplace well-being as system outcome
Approach Type	Risk-based standard	Programmatic integrative model	Compliance-oriented framework	Systems-based biopsychosocial model
Role of Behaviour	Implicit	Partially addressed	Behaviourally implicit	Explicit (appraisal, coping, adaptation)
System Dynamics	Limited	Limited	Minimal	Explicit feedback loops and interactions
Level of Integration	Organisational	Individual + organisational	Organisational	Multi-level (individual–organisational–contextual)
Well-being Concept	Risk reduction	Health promotion	Injury/illness prevention	Emergent system property
Operational Orientation	Guidance standard	Implementation programme	Regulatory compliance focus	Conceptual model with operational pathways
Organisational Determinants	Recognised	Recognised	Partially embedded	Explicitly structured as system drivers

Table 2 presents a conceptual positioning rather than a direct empirical comparison. It illustrates how the proposed framework synthesises and extends existing approaches by explicitly integrating behavioural processes and feedback dynamics within a multi-level systems perspective, thereby broadening the focus from risk control to emergent workplace well-being.

5.5. Applied Implications

The framework supports integration of occupational health, safety, and behavioural health into a unified system, enabling a shift from reactive compliance to proactive well-being management. It emphasises psychosocial safety climate and leadership influence[19], and supports alignment with ISO 45003 for organisational implementation. In practice, indicators linked to psychosocial conditions, behavioural responses, and organisational outcomes may function as feedback-oriented signals to identify emerging system strain and guide targeted organisational interventions.

For example, an organisation experiencing increasing fatigue complaints, elevated workload indicators, and declining safety compliance may apply the framework to integrate OHS monitoring, psychosocial risk assessment, and workplace well-being governance. Indicators associated with workload, stress appraisal, absenteeism, and behavioural outcomes may collectively signal emerging organisational strain. In response, interventions such as task redesign, workload redistribution, leadership communication improvements, and enhanced psychosocial support mechanisms may be implemented. The framework thereby supports coordinated decision-making across occupational health, safety, human resources, and organisational management functions.

6. Implications for Practice and Policy

The Integrated Workplace Well-being Framework has implications for organisational practice, leadership, measurement systems, and policy development. It supports a shift from fragmented, compliance-based approaches toward integrated systems that link behavioural, psychosocial, and organisational determinants of well-being[1,35].

6.1. Organisational Implementation

Operationalisation requires embedding workplace well-being within organisational systems by integrating occupational health, safety, and behavioural functions. Work design is central, particularly in balancing demands, resources, and autonomy. Evidence from job demands–resources theory supports redesign strategies such as workload adjustment, task restructuring, and participatory job design to reduce strain and improve engagement[14,36].

6.2. Leadership and Culture

Leadership significantly shapes psychosocial conditions and behavioural responses. Psychosocial safety climate research shows that leadership commitment to psychological health reduces stress and improves well-being[19]. Supportive leadership enhances trust, perceived control, and engagement, and is associated with lower burnout and improved performance[37]. Key behavioural indicators include

communication clarity, responsiveness, and prioritisation of psychosocial safety.

6.3. Behavioural Health Metrics

The framework shifts emphasis from lagging indicators (e.g., injury rates, absenteeism) to a balanced system of leading and lagging metrics. Leading indicators such as psychosocial risk, stress, cognitive load, and behavioural responses enable early identification of system strain and are linked to OHS outcomes [1,38]. **Table 3** aligns metrics with system components, distinguishing inputs, behavioural processes, and outputs to support structured assessment of workplace well-being.

Table 3. Metrics and Framework Alignment.

Domain	Indicator/Metric	Measurement Example	System Component (Framework Mapping)
Physical Environment	Hazard exposure, workload intensity	Ergonomic risk score, workload index	System Input
Psychological	Stress, cognitive load, emotional strain	PSS score, cognitive workload scale	Behavioural Process
Social/Organisational	Leadership behaviours; psychosocial safety climate	PSC-12; supervisor communication, support, responsiveness scales	System Input
Behavioural	Safety compliance, coping behaviour, engagement	Observation, self-report scales	Behavioural Process
Health Outcomes	Burnout, injury, well-being	Maslach Burnout Inventory (MBI), injury rates, WHO-5	System Output
Organisational Outcomes	Productivity, absenteeism	Absenteeism rate, performance KPIs	System Output

Note: This mapping aligns metrics with the proposed biopsychosocial systems framework, distinguishing system inputs, internal behavioural processes, and system-level outputs.

The indicators presented in **Table 3** may also function as feedback-oriented monitoring variables within the proposed systems framework. Changes in psychosocial conditions, behavioural responses, or organisational outcomes can provide early signals of emerging system strain, thereby supporting timely organisational interventions such as workload redesign, enhanced psychosocial support, leadership adjustments, or modification of work processes. In this way, measurement is positioned not only as an assessment function but also as part of an adaptive organisational learning process.

6.4. Policy Implications

The framework supports integrated occupational health policies that incorporate behavioural and psychosocial determinants into regulatory systems. It highlights the need for alignment between ISO 45001 and ISO 45003, strengthened preventive approaches, and development of standardised indicators for accountability and monitoring [39,40]. It also supports equity-oriented, multi-level interventions for complex work environments.

6.5. System-Level Interventions

System-level interventions across physical, psychosocial, organisational, and behavioural domains are presented in **Table 4**. These examples demonstrate how integrated actions, rather than isolated programmes, can improve system functioning and reduce organisational risk.

6.6. Implementation and Operationalisation

An implementation matrix linking determinants, indicators, interventions, and organisational responsibilities is presented in **Table 5**. The matrix operationalises the framework by connecting system components with actionable organisational practices, including job redesign, leadership development, and psychosocial risk management [1,40].

Table 4. System-Level Interventions across Determinants.

Determinant Domain	Specific Factor	Example System-Level Intervention	Expected System Effect
Physical Environment	Hazard exposure	Redesign workspace layout; implement engineering controls	Reduced exposure and physiological strain
Psychosocial Conditions	Job demands	Redesign workflows to balance workload and recovery time	Reduced stress accumulation
	Job control	Increase decision latitude through participatory work design	Improved autonomy and engagement

Table 4. *Cont.*

Determinant Domain	Specific Factor	Example System-Level Intervention	Expected System Effect
Organisational Factors	Leadership	Implement leadership training focused on psychological health and safety	Strengthened psychosocial safety climate
	Resources	Align staffing and resources with task demands	Reduced overload and error risk
Behavioural Processes	Cognitive load	Introduce structured cognitive load assessments and task simplification	Improved decision-making and reduced fatigue
	Stress appraisal	Provide training in adaptive coping and stress recognition	Enhanced resilience and adaptive responses
	Behavioural adaptation	Use feedback systems (e.g., safety climate surveys) to guide adjustments	Continuous system improvement
System Integration	Cross-level alignment	Integrate OHS, HR, and well-being strategies into unified governance structures	Reduced fragmentation and improved coherence

Table 5. Implementation Matrix Linking Determinants, Metrics, and Interventions.

Determinant	Indicator (Metric)	Intervention Type	Organisational Responsibility	Framework Component
Work Design	Workload index, task variability	Job redesign, workload balancing	Operations, HR	System Input
Psychosocial Conditions	Perceived stress (PSS); PSC-12	Supervisor training, support systems	HR, Line Managers	System Input
Physical Environment	Ergonomic risk score	Ergonomic redesign, hazard control	Safety/OHS	System Input
Behavioural Processes	Safety compliance, engagement	Behavioural training, nudges	Safety, Supervisors	Behavioural Process
Leadership	Leadership behaviour index	Leadership development programs	Senior Management	System Input
Organisational Systems	Absenteeism, turnover	Policy integration, resource allocation	HR, Management	System Output

In practice, organisations can strengthen safety dashboards by integrating leading and lagging indicators to enable proactive intervention. However, implementation may be constrained by organisational resistance, resource limitations (particularly in SMEs), measurement burden, and confidentiality concerns. Addressing these requires phased implementation, simplified metrics, leadership commitment, and integration with existing OSH systems [39].

These constraints also explain implementation gaps in existing models where behavioural and psychosocial factors are insufficiently embedded. Evidence from construction, healthcare, and digitally mediated work environments demonstrates that combining organisational, behavioural, and technological factors improves safety and well-being outcomes [41–43]. The conceptual approach used to develop the framework is described in the following section.

7. Discussion

This study advances a conceptual shift from traditional occupational health toward an integrated behavioural health systems perspective, grounded in biopsychosocial and systems thinking approaches [3,18,21]. The discussion situates the proposed framework within existing knowledge, highlights its applied relevance, and outlines its limitations and future research directions.

While the framework draws on established models of stress and behaviour, it also incorporates broader physiological and dynamic system perspectives to capture the complexity of stress responses.

7.1. Conceptual Approach

This study adopts a conceptual synthesis and integrative framework development approach to construct a systems-based model of workplace well-being grounded in behavioural health and biopsychosocial principles. As the work is conceptual in nature, no primary data collection was undertaken. Instead, the framework was developed through a structured and iterative engagement with existing theoretical and applied literature in occupational health, behavioural science, and systems thinking.

The development process followed a theory-driven conceptual integration strategy, in which established models and standards, including the biopsychosocial model, the transactional model of stress and coping, job demands–resources theory, ISO 45001/45003, and the TWH® approach, were

systematically reviewed and synthesised to identify overlapping constructs, gaps, and complementarities. Particular attention was given to identifying how behavioural processes, psychosocial conditions, and organisational structures interact within existing frameworks and where system-level integration remains limited.

The synthesis was conducted through an iterative process involving (i) identification of core determinants of workplace well-being, (ii) mapping of behavioural and psychosocial processes linking determinants to outcomes, and (iii) structuring of feedback relationships and multi-level interactions into a coherent systems architecture. This process enabled the development of a unified framework representing workplace well-being as an emergent property of interacting physical, psychological, behavioural, and organisational subsystems.

The framework was developed through theoretically guided integration of empirically established models and standards relevant to occupational health, psychosocial risk, behavioural science, and systems-based organisational analysis. As a conceptual study, the present work does not provide empirical validation or quantitative testing of causal pathways; rather, it offers a theoretically integrated systems framework intended to support future empirical research, operational development, and applied organisational implementation.

The approach is aligned with established methodologies for conceptual framework development in health and social sciences, particularly those emphasising iterative theory construction, abstraction, and systematisation of concepts [44]. Accordingly, the resulting framework is intended as a theoretical and heuristic model to guide empirical validation, simulation studies, and applied organisational interventions, rather than a statistically derived or data-driven model.

7.2. Conceptual Contributions

The primary contribution of this study is the reframing of workplace health as an integrated behavioural health system, extending beyond conventional OSH paradigms. The framework moves beyond hazard-centric approaches by explicitly embedding behavioural processes within system dynamics, addressing a key gap in existing models [13,14,19].

While the framework is informed by the transactional model of stress proposed by Richard Lazarus and Susan Folkman [13], it does not rely exclusively on cognitive appraisal. This reflects recognised limitations of appraisal-centric perspectives, which have been critiqued for their emphasis on conscious cognitive evaluation and restricted treatment of embodied, affective, and automatic stress responses, as well as for conceptual ambiguity in the broader use of the "stress" construct [45].

Complementary perspectives, including allostatic load and neurobiological stress pathways, are incorporated to account for embodied, affective, and non-conscious responses that shape behavioural dynamics within organisational systems. It further advances a systems-based understanding of well-being by incorporating feedback loops, cross-level interactions, and emergent outcomes [21,36,46], positioning workplace well-being as an emergent system property rather than a discrete outcome [18,47,48].

While aligned with ISO 45003 and the TWH® program, the framework is not a direct alternative but a higher-order conceptual architecture that enhances these approaches through behavioural and systems integration.

7.3. Practical Relevance

The proposed framework is relevant across workplace, industrial, and sustainability contexts, particularly where occupational health systems are evolving. It matters because it enables the integration of physical risk management with psychosocial and behavioural dimensions, addressing both traditional hazards and emerging challenges such as stress and cognitive load within a unified system perspective.

Empirical research supports this need for integration, demonstrating that organisational factors (e.g., leadership, resources, and role clarity) interact with behavioural processes to shape well-being outcomes, while fragmented or single-level interventions often produce limited or inconsistent effects [1,49]. This reinforces the importance of system-based approaches that align organisational design, behavioural mechanisms, and health outcomes.

By linking workplace well-being with organisational resilience, productivity, and sustainability goals, the framework extends beyond risk prevention toward system-level performance and long-term value creation [50,51]. In this context, and given the evolving adoption of psychosocial standards such as ISO 45003 [38] and Indian national frameworks including BIS 14489 [52], the framework serves as a concep-

tual guide for integration rather than a compliance tool.

7.4. Limitations

This study has several limitations that should be acknowledged. First, the framework is conceptual in nature and has not been empirically validated [44,53]. While it integrates established theories and models, its applicability across different sectors and contexts requires systematic testing. Second, the framework adopts a broad systems perspective, which, while comprehensive, may present challenges in operationalisation and measurement [36,54]. Translating complex system interactions into practical tools and indicators requires further development. Third, the framework does not explicitly address context-specific variations, such as differences in industry, organisational size, cultural factors, or regulatory environments. These factors may influence how determinants interact and how interventions are implemented. Finally, while the framework aligns with existing standards such as ISO 45003, it does not provide detailed guidance for certification or compliance, as its purpose is conceptual rather than prescriptive.

In addition, while behavioural processes are conceptualised within a systems framework, the model draws partially on appraisal-based stress theories, which may underrepresent automatic and physiological responses; further integration of dynamic and neurobiological perspectives would strengthen its explanatory depth.

7.5. Future Research Directions

Future research should focus on empirical validation, contextual adaptation, and operationalisation of the proposed framework. Quantitative and mixed-method studies are needed to examine relationships among determinants, behavioural processes, and outcomes [14,36], while sector-specific applications can refine contextual relevance [55]. The development of integrated measurement systems, particularly leading behavioural and psychosocial indicators, is essential for implementation. Additionally, intervention-based studies should evaluate multi-level strategies and their impact on well-being and organisational performance [56], alongside regionally grounded research to inform policy development and standard adaptation [52].

Future research should also integrate physiological and neurobiological measures of stress, enabling a more comprehensive representation of both cognitive and embodied processes within dynamic organisational systems.

8. Conclusions

This study advances a shift from traditional occupational health toward an integrated workplace well-being perspective grounded in biopsychosocial and systems thinking. It conceptualises workplace health as an emergent outcome of interacting physical, psychological, social, and organisational determinants mediated through behavioural processes and dynamic system interactions.

By explicitly integrating behavioural health within OSH systems, the framework bridges technical risk management with human-centered processes such as perception, stress appraisal, and coping, providing a more comprehensive understanding of how workplace conditions shape health, safety, and performance. The framework emphasises that effective strategies must extend beyond risk prevention to include promotive and adaptive mechanisms supported by leadership, culture, and integrated measurement systems. It complements existing approaches by offering a conceptual architecture that strengthens their application through behavioural and systems integration. Overall, positioning well-being as a core system outcome enables organisations to enhance resilience, performance, and long-term sustainability in increasingly complex work environments.

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Data Availability Statement

The analyzed data supporting the findings of this study are provided in the manuscript and can also be obtained from

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Conflicts of Interest

The author declares no competing financial or personal interests.

AI Use Statement

AI-assisted tools were used only for language editing, formatting, and figure preparation based on author-defined concepts; all intellectual contributions and conclusions remain the responsibility of the author. The author has reviewed and edited the output and takes full responsibility for the content of this publication.

References

[1] World Health Organization (WHO), 2022. Mental Health at Work: Policy Brief. WHO: Geneva, Switzerland.

[2] International Labour Organization (ILO), 2023. A Call for Safer and Healthier Working Environments. ILO: Geneva, Switzerland.

[3] Schulte, P.A., Sauter, S.L., 2021. Work and well-being: The changing face of occupational safety and health. National Institute for Occupational Safety and Health: Washington, DC, USA. Available from: https://stacks.cdc.gov/view/cdc/106922

[4] do Vale, M.A., Biasi, E.Y., de Lucca, S.R., 2025. Psychosocial factors at work and common mental disorders in health care professionals and workers. Revista Brasileira de Medicina do Trabalho. 23(1), e20251421. DOI: https://doi.org/10.47626/1679-4435-2025-1421

[5] Eurofound, 2015. Sustainable Work over the Life Course: Concept Paper. Publications Office of the European Union: Luxembourg, Luxembourg. DOI: https://doi.org/10.2806/281708

[6] Schulte, P.A., Sauter, S.L., Pandalai, S.P., et al., 2024. An urgent call to address work-related psychosocial hazards and improve worker well-being. American Journal of Industrial Medicine. 67(6), 499–514. DOI: https://doi.org/10.1002/ajim.23583

[7] Jain, A., Hassard, J., Leka, S., et al., 2021. The role of occupational health services in psychosocial risk management and the promotion of mental health and well-being at work. International Journal of Environmental Research and Public Health. 18(7), 3632. DOI: https://doi.org/10.3390/ijerph18073632

[8] Abhari, K., 2025. Employee participation in digital transformation: From digitalization sentiment to transformation predisposition. Information & Management. 62(1), 104212. DOI: https://doi.org/10.1016/j.im.2025.104212

[9] Jamil, A., Sehat, R.M., Johari, Y.C., et al., 2023. Exploring the link between job stress and performance: Identifying the root causes. International Journal of Academic Research in Accounting, Finance and Management Sciences. 13(3), 501–522. DOI: https://doi.org/10.6007/IJARAFMS/v13-i3/19073

[10] Derdowski, L.A., Mathisen, G.E., 2023. Psychosocial factors and safety in high-risk industries: A systematic literature review. Safety Science. 157, 105948. DOI: https://doi.org/10.1016/j.ssci.2022.105948

[11] Höge, T., Hornung, S., 2015. Perceived flexibility requirements: Exploring mediating mechanisms in positive and negative effects on worker well-being. Economic and Industrial Democracy. 36(3), 407–430. DOI: https://doi.org/10.1177/0143831X13511274

[12] International Labour Organization (ILO), 2019. Safety and Health at the Heart of the Future of Work: Building on 100 Years of Experience. ILO: Geneva, Switzerland.

[13] Lazarus, R.S., Folkman, S., 1984. Stress, Appraisal, and Coping. Springer: New York, NY, USA.

[14] Bakker, A.B., Demerouti, E., 2017. Job demands–resources theory: Taking stock and looking forward. Journal of Occupational Health Psychology. 22(3), 273–285. DOI: https://doi.org/10.1037/ocp0000056

[15] World Health Organization (WHO), International Labour Organization (ILO), 2021. WHO/ILO Joint Estimates of the Work-Related Burden of Disease and Injury, 2000–2016: Global Monitoring Report. WHO and ILO: Geneva, Switzerland. Available from: https://www.who.int/publications/i/item/9789240034945

[16] Karasek Jr., R.A., 1979. Job demands, job decision latitude, and mental strain: Implications for job redesign. Administrative Science Quarterly. 24(2), 285–308. DOI: https://doi.org/10.2307/2392498

[17] Siegrist, J., 1996. Adverse health effects of high-effort/low-reward conditions. Journal of Occupational Health Psychology. 1(1), 27–41. DOI: https://doi.org/10.1037/1076-8998.1.1.27

[18] Engel, G.L., 1977. The need for a new medical model: A challenge for biomedicine. Science. 196(4286), 129–136. DOI: https://doi.org/10.1126/science.847460

[19] Dollard, M.F., Bakker, A.B., 2010. Psychosocial safety climate as a precursor to conducive work environments, psychological health problems, and employee engagement. Journal of Occupational and Organizational Psy-

chology. 83(3), 579–599. DOI: https://doi.org/10.1348/096317909X470690

[20] Buffet, A., Gervais, R.L., Eeckelaert, L., et al., 2013. Well-Being at Work: Creating a Positive Work Environment. Publications Office of the European Union: Luxembourg, Luxembourg. DOI: https://doi.org/10.2802/52064

[21] Meadows, D.H., 2008. Thinking in Systems: A Primer. Earthscan: London, UK; Sterling, VA, USA.

[22] Johns, G., 2010. Presenteeism in the workplace: A review and research agenda. Journal of Organizational Behavior. 31(4), 519–542. DOI: https://doi.org/10.1002/job.630

[23] Bentley, T.A., Caponecchia, C., Onnis, L., et al., 2023. A systems model for the design of occupational health and safety management systems inclusive of work-from-home arrangements. Applied Ergonomics. 109, 103966. DOI: https://doi.org/10.1016/j.apergo.2023.103966

[24] Hancock, P.A., 1989. A dynamic model of stress and sustained attention. Human Factors. 31(5), 519–537. DOI: https://doi.org/10.1177/001872088903100503

[25] Li, Y., Chen, C., Yuan, Y., 2025. Evolving the job demands-resources framework to JD-R 3.0: The impact of after-hours connectivity and organizational support on employee psychological distress. Acta Psychologica. 253, 104710. DOI: https://doi.org/10.1016/j.actpsy.2025.104710

[26] Gardner, D., Fletcher, R., 2009. Demands, appraisal, coping and outcomes: Positive and negative aspects of occupational stress in veterinarians. International Journal of Organizational Analysis. 17(4), 268–284. DOI: https://doi.org/10.1108/19348830910992095

[27] Biggio, G., Cortese, C.G., 2013. Well-being in the workplace through interaction between individual characteristics and organizational context. International Journal of Qualitative Studies on Health and Well-Being. 8(1), 19823. DOI: https://doi.org/10.3402/qhw.v8i0.19823

[28] Monyei, F.E., Arachie, A.E., Ukpere, W., et al., 2024. Systems thinking in workplace health and safety: A theory and practice nexus. Annals of Spiru Haret University. Economic Series. 23(4), 111–128. DOI: https://doi.org/10.26458/2344

[29] Garner, E.V., Golijani-Moghaddam, N., Sabin-Farrell, R., 2023. Psychological flexibility as a predictor of professional quality of life in newly qualified psychological therapy practitioners. Journal of Contextual Behavioral Science. 28, 139–148. DOI: https://doi.org/10.1016/j.jcbs.2023.02.005

[30] Carreno, A.M., 2024. Building a continuous feedback loop for real-time change adaptation: Best practices and tools. Zenodo. DOI: https://doi.org/10.5281/zenodo.14051466

[31] Parkinson, J.A., Gould, A., Knowles, N., et al., 2025. Integrating systems thinking and behavioural science. Behavioral Sciences. 15(4), 403. DOI: https://doi.org/10.3390/bs15040403

[32] Valtonen, A., Kimpimäki, J.P., Savela, N., 2025. Employee wellbeing: A computational review on the consequences of workplace automation. Technovation. 152, 103424. DOI: https://doi.org/10.1016/j.technovation.2025.103424

[33] Muzumdar, P., 2025. Theory of Organizational Justice. Zenodo. DOI: https://doi.org/10.5281/zenodo.15114869

[34] Pagell, M., Parkinson, M., Veltri, A., 2024. Putting worker safety at the heart of supply chain management. In: Sarkis, J. (Ed.). The Palgrave Handbook of Supply Chain Management. Palgrave Macmillan: Cham, Switzerland. pp. 679–696. DOI: https://doi.org/10.1007/978-3-031-19884-7_98

[35] National Institute for Occupational Safety and Health (NIOSH), 2016. Fundamentals of Total Worker Health Approaches: Essential Elements for Advancing Worker Safety, Health, and Well-Being. NIOSH: Cincinnati, OH, USA.

[36] Nielsen, K., Miraglia, M., 2017. What works for whom in which circumstances? On the need to move beyond the 'what works?' question in organizational intervention research. Human Relations. 70(1), 40–62. DOI: https://doi.org/10.1177/0018726716670226

[37] Li, J., Ebabu, E.A., Yu, H., et al., 2025. Leadership, environment, and engagement: Psychological pathways to enhanced personnel performance. Acta Psychologica. 261, 105963. DOI: https://doi.org/10.1016/j.actpsy.2025.105963

[38] Nebbs, A., Martin, A., Neil, A.L., et al., 2025. Implementing the ISO 45003 standard: An approach combining implementation teams and a facilitated planning process. Safety Science. 191, 106961. DOI: https://doi.org/10.1016/j.ssci.2025.106961

[39] ISO 45001:2018. 2018. Occupational Health and Safety Management Systems—Requirements with Guidance for Use. Available from: https://www.iso.org/standard/63787.html

[40] Galliamova, E.I., Elizareva, E.N., 2024. Application of the international standard ISO 45003:2021 in psychosocial risk management. Economy and Business: Theory and Practice. 12-1(118), 60–63. DOI: https://doi.org/10.24412/2411-0450-2024-12-1-60-63 (in Russian)

[41] Bayramova, A., Edwards, D.J., Roberts, C., et al., 2023. Enhanced safety in complex socio-technical systems via safety-in-cohesion. Safety Science. 164, 106176. DOI: https://doi.org/10.1016/j.ssci.2023.106176

[42] Valtonen, A., Saunila, M., Ukko, J., et al., 2025. AI and employee wellbeing in the workplace: An empirical study. Journal of Business Research. 199, 115584. DOI: https://doi.org/10.1016/j.jbusres.2025.115584

[43] Catapano, P., Cipolla, S., Sampogna, G., et al., 2023. Organizational and individual interventions for managing work-related stress in healthcare professionals: A systematic review. Medicina. 59(10), 1866. DOI: https://doi.org/10.3390/medicina59101866

[44] Jabareen, Y., 2009. Building a conceptual framework: Philosophy, definitions, and procedure. International Journal of Qualitative Methods. 8(4), 49–62. DOI: https://doi.org/10.1177/160940690900800406

[45] Kagan, J., 2016. An overly permissive extension. Perspectives on Psychological Science. 11(4), 442–450. DOI: https://doi.org/10.1177/1745691616635593

[46] Sterman, J., 2002. System Dynamics: Systems Thinking and Modeling for a Complex World. Massachusetts Institute of Technology: Cambridge, MA, USA.

[47] Ryff, C.D., Keyes, C.L.M., 1995. The structure of psychological well-being revisited. Journal of Personality and Social Psychology. 69(4), 719–727. DOI: https://doi.org/10.1037/0022-3514.69.4.719

[48] Grant, A.M., Christianson, M.K., Price, R.H., 2007. Happiness, health, or relationships? Managerial practices and employee well-being tradeoffs. Academy of Management Perspectives. 21(3), 51–63. DOI: https://doi.org/10.5465/amp.2007.26421238

[49] Bauer, G.F., Jenny, G.J., 2018. Leadership and team development to improve organizational health. In: Nielsen, K., Noblet, A. (Eds.). Organizational Interventions for Health and Well-Being: A Handbook for Evidence-Based Practice, 1st ed. Routledge: London, UK. p. 25. DOI: https://doi.org/10.4324/9781315410494

[50] United Nations General Assembly, 2015. Resolution Adopted by the General Assembly on 11 September 2015. United Nations: New York, NY, USA.

[51] Karanika-Murray, M., Biron, C., Hervieux, V., et al., 2021. Managing presenteeism to optimise health and performance. In: Wall, T., Cooper, C.L., Brough, P. (Eds.). The SAGE Handbook of Organizational Well-being, vol. 1. Sage: London, UK. pp. 232–247. DOI: https://doi.org/10.4135/9781529757187.n16

[52] IS:14489. 2018. Occupational Health and Safety—Code of Practice, First Revision. Available from: https://www.iseindia.in/wp-content/uploads/2022/10/IS-14489-2018-Code-of-Practice-on-occupational-safety-health-Audit.pdf

[53] Podsakoff, P.M., MacKenzie, S.B., Podsakoff, N.P., 2016. Recommendations for creating better concept definitions in the organizational, behavioral, and social sciences. Organizational Research Methods. 19(2), 159–203. DOI: https://doi.org/10.1177/1094428115624965

[54] Cox, T., Griffiths, A., Randall, R., 2003. A risk management approach to the prevention of work stress. In: Schabracq, M.J., Winnubst, J.A.M., Cooper, C.L. (Eds.). The Handbook of Work and Health Psychology, 2nd ed. John Wiley & Sons, Ltd.: Chichester, UK. pp. 191–206. DOI: https://doi.org/10.1002/0470013400.ch10

[55] Brand, S.L., Fleming, L.E., Wyatt, K.M., 2015. Tailoring healthy workplace interventions to local healthcare settings: A complexity theory-informed workplace of well-being framework. The Scientific World Journal. 2015(1), 340820. DOI: https://doi.org/10.1155/2015/340820

[56] LaMontagne, A.D., Keegel, T., Vallance, D., 2007. Protecting and promoting mental health in the workplace: Developing a systems approach to job stress. Health Promotion Journal of Australia. 18(3), 221–228. DOI: https://doi.org/10.1071/HE07221