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HEALTH AND SAFETY OF EMPLOYEES IN HYBRID WORKING CONDITIONS

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Abstract: The COVID-19 pandemic accelerated the global transition from traditional office work to hybrid and remote models, profoundly reshaping occupational health and safety (OHS). This paper analyzes the challenges and risks associated with hybrid work, with particular emphasis on ergonomic deficiencies, psychosocial stressors, organizational barriers, and regulatory gaps. Improvised home workstations have been shown to increase the prevalence of musculoskeletal disorders (MSDs), while inadequate communication, constant digital connectivity, and lack of social contact contribute to anxiety, burnout, and digital fatigue. Findings also highlight a lack of harmonized OHS standards across countries and organizations, leaving employees vulnerable to unclear responsibilities and insufficient protection. To address these issues, the paper emphasizes the need for integrated strategies that combine ergonomic education, mental health support, transparent organizational policies, and clear legal frameworks. The study concludes that sustainable hybrid work requires the modernization of OHS systems, ensuring inclusivity, resilience, and long-term protection of employee wellbeing.

Key words: *hybrid work, occupational health and safety, ergonomics, digital fatigue, workplace regulation*

INTRODUCTION

The COVID-19 pandemic accelerated the shift from office to remote work, raising questions about sustainability in the post-pandemic era [1]. This transition brought both challenges, such as blurred work-life boundaries, stress, and mental health issues, and opportunities for greater flexibility [2]. Workers reported autonomy and reduced costs, but also anxiety, isolation, and burnout [3, 4, 5, 6].

Organizational policies also changed: studies of tech firms show increased acceptance of flexible work, shifting the psychological contract between employers and employees [7]. Resistance grows when companies restrict work-from-home, while hybrid models differ by size, sector, and culture [1, 8, 9]. Hybrid and remote work have become global norms, linked to access to wider talent pools but also to challenges in digital infrastructure, cybersecurity, and team cohesion [10, 11, 12, 13]. Balancing flexibility with efficiency remains essential [1, 2].

COVID-19 restrictions made telecommuting widespread, changing perceptions of modern work [14]. Digital platforms like Zoom and Teams enabled continuity [13, 15]. Employees now prefer flexibility for better work-life balance, and many would quit rather than return full-time to the office [9, 16]. Employers recognize benefits such as lower costs, higher productivity, and resilience [17, 18]. Still, challenges remain: preferences vary by gender, age, and family status, with women often facing heavier workloads and digital fatigue [14, 19]. Flexible work is therefore a structural change in labor organization.

Hybrid models depend on digital tools that reshape communication, agility, and knowledge management [13, 20]. Digitalization fosters flexible structures and faster adaptation to crises [21, 22]. It also enables data-driven decision-making but requires new security and literacy standards [23, 24]. While digitization improves resilience and cohesion, overreliance can cause fatigue and stress. Its success relies on both technology and managerial culture [25, 26].

This paper analyzes challenges and develops recommendations for occupational health and safety (OHS) in hybrid work. Focus is on identifying shortcomings, comparing findings with existing literature, and proposing solutions addressing physical, organizational, and psychosocial risks. The aim is to promote sustainable and inclusive OHS practices supported by technology, improving employee protection, well-being, and resilience in the hybrid work environment.

CHANGE IN THE WORK ENVIRONMENT AND ITS IMPACT ON OHS

Remote work differs from traditional office settings in ergonomics, supervision, and interaction. Home offices are often improvised and linked to higher risks of musculoskeletal disorders (MSD) [15, 27, 28]. Socioeconomic status influences ergonomic conditions, with low-income workers less likely to access proper equipment [29].

Managers face challenges in monitoring performance, coordinating teams, and ensuring security in hybrid settings, while excessive digital surveillance fosters alienation and stress [30, 31, 32]. Unlike office work with direct feedback, remote work often relies on monitoring software, which may undermine trust.

Social interaction is also reduced, informal exchanges that build belonging are missing in remote work, leading to emotional distance, isolation, and weaker team dynamics [29, 33, 34]. These structural differences demand targeted OHS measures, ergonomic education, transparent monitoring, and digital tools that promote cohesion.

Remote work brings technical risks (poor ergonomics, lack of equipment), organizational challenges (supervision, unclear standards), and psychosocial risks (anxiety, isolation, burnout) [2, 4, 35, 36]. Technical problems, such as inadequate workstations, increase MSD risks and require ergonomic guidelines and workspace assessments [27, 37].

Organizationally, digitization enables flexibility but is ineffective without supportive culture; hierarchical firms showed more productivity decline [21, 22, 38]. Recommendations include clear policies, trust-based monitoring, and training managers for virtual teams [30].

Psychosocial risks include emotional exhaustion and blurred work-life boundaries [3, 4]. Mitigation strategies involve mental health programs, digital break rules, and social support [36, 39, 40]. Integrated approaches, such as combining ergonomics, digital infrastructure, and psychological support, are necessary for sustainable OHS [41, 42].

Remote work intensified isolation, digital fatigue, and blurred boundaries. Isolation weakens psychological safety and reduces initiative [43, 44, 45]. Digital fatigue stems from constant camera use and self-monitoring, causing cognitive overload [46, 47, 48]. Constant connectivity fosters pressure to remain available, disrupting rest and relationships [49, 50, 51].

These stressors require policies promoting digital hygiene, time boundaries, detox strategies, and virtual psychological safety to protect employees' mental health.

ANALYSIS OF CHALLENGES AND RISKS IN REMOTE WORK

Improvised home offices increase risks of MSDs [27]. Studies show high prevalence of neck and back pain among employees without ergonomic setups [35, 52, 53]. Poor equipment and lighting especially affect lower-income workers. Ergonomic deficiencies reduce efficiency, increase sick leave, and are a public health issue [54]. Policies should set minimum technical standards, provide training, and ensure regular workplace checks.

Telework often involves kitchen chairs, beds, poor lighting and lack of ergonomic standards, increasing MSDs and psychosocial stress [55, 56]. Reviews confirm higher incidence of pain in hybrid workers compared to office-based ones [57, 58]. Inadequate ergonomics also links to digital fatigue and stress due to blurred home–work boundaries [32, 33]. Solutions include systemic standards, equipment provision, training, and institutional support for adapting home workplaces.

Lack of direct supervision reduces motivation, increases stress, and fosters burnout [59]. Poor communication and feedback mechanisms worsen isolation, while supportive managers mitigate these effects. Constant self-assessment without guidance leads to feelings of

underperformance. Systemic solutions involve structured communication, mentoring, and feedback programs.

Remote work intensifies burnout, loneliness, and overload. Employees report emotional exhaustion due to constant availability and inadequate support [59]. Lack of informal social contact reduces belonging and cooperation [60]. Isolation further reduces motivation and increases fatigue. Organizations should implement group support, contact sessions, and wellbeing programs to maintain engagement.

Remote and Work from anywhere (WFA) models increase risks of cyber threats, privacy violations, and digital overload [30]. Use of personal devices without protection, lack of training, and decentralized infrastructure create vulnerabilities. Constant connectivity raises stress and dependence, making cybersecurity part of OHS. Cross-sector policies, training, and clear digital behavior guidelines are necessary.

The International Labor Organisation (ILO) highlights risks and opportunities of teleworking, stressing ergonomics, mental health, and the need for employer support [11]. A practical guide and a checklist for small and medium-sized enterprises (SMEs) set out clear recommendations on working hours, equipment, and communication. Both treat telework as a long-term reality and call for strategies that make remote work safe, healthy, and inclusive, with explicit attention to mental health and to safeguarding the right to disconnect. Empirical evidence links hybrid work to heightened psychosocial and ergonomic risks. IT professionals report elevated anxiety and burnout [30], while staff in education and administration experience exhaustion driven by digital fatigue [59]. Inadequate home-office ergonomics correlate with MSDs and increased stress [27, 55]. Reviews also identify loneliness as a prominent concern [60]. Privacy-respecting monitoring of workload and well-being indicators, structured self-assessments, and regular one-to-one/team check-ins are associated with better well-being and engagement.

ASSESSMENT OF THE EXISTING SITUATION AND THE NEED FOR INNOVATION

Despite the spread of remote work, most countries lack adequate legislation. Only 9 of 27 EU countries have a right-to-disconnect law [53]. Corporate policies vary, some require office days, others none [7]. The absence of regulation leaves employees exposed to unclear rules and risks for balance, health, and safety. National laws should define minimum rights, disconnection policies, and office presence rules.

OHS regulations are clear for offices but vague for home settings [53]. Employers cannot fully control private workspaces, creating liability gaps. There is the need for clearer national policies defining employer and employee responsibilities for both physical and psychosocial wellbeing. Minimum ergonomic standards, availability rules, and emotional support should be formally regulated.

Although isolation, stress, and burnout are well documented, most organizations neglect them in OHS policies. Meta-analyses show high rates of anxiety, depression, and fatigue among teleworkers. Recommended measures include integrating ISO 45003, adopting disconnection policies, regular wellbeing surveys, and manager training.

Clear rules on availability, core working hours, and flextime balance personal and professional needs. Educational programs on digital tools, virtual team leadership, and mental health improve safety and reduce stress. Transparent communication strengthens trust and engagement in distributed teams.

Current OHS standards lag behind digital work realities. Ropponen [53] calls for longitudinal studies and regulatory models tracking work hours and digital connectivity. Comprehensive frameworks for home offices, mental health, and disconnection are needed. Wearables and connected-worker platforms can monitor stress, ergonomics, and health in real time. Future norms should integrate digital infrastructure, mental health protection, and fair application of emerging technologies.

CONCLUSION

Hybrid and remote work have become permanent features of the modern labor market, offering flexibility and efficiency but also posing new and complex risks for OHS. This paper demonstrated that inadequate ergonomic conditions, blurred work-life boundaries, social isolation, and the absence of clear supervisory structures can significantly undermine employee wellbeing. Moreover, insufficient regulatory frameworks and fragmented organizational policies leave critical gaps in protecting workers from physical, organizational, and psychosocial hazards.

Addressing these challenges requires a holistic and proactive approach. Employers should implement minimum ergonomic standards, training programs for digital literacy and virtual leadership, and policies that guarantee the right to disconnect. Equally important are initiatives to promote mental health, strengthen social cohesion in distributed teams, and foster transparent communication and trust. At the policy level, governments and institutions must harmonize OHS regulations with the realities of hybrid work, ensuring shared responsibility between employers and employees.

Ultimately, sustainable hybrid work environments depend not only on digital infrastructure but also on supportive managerial cultures and inclusive OHS strategies. By integrating ergonomic, psychological, organizational, and regulatory measures, hybrid work can evolve into a resilient and healthy model that safeguards both productivity and employee wellbeing. Future work should include longitudinal, multi-sector studies that combine validated psychosocial and ergonomic scales with privacy-preserving digital/wearable data to chart risk trajectories in hybrid and remote settings. In parallel, randomized or quasi-experimental evaluations of organization-level interventions (e.g., right-to-disconnect policies, virtual-leadership training, ergonomic micro-grants), coupled with development of a Hybrid OHS Wellbeing Index and cost-benefit analyses, are needed to guide regulation and SME practice.

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