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Article

A Conceptual Artificial Intelligence Driven Framework for Early Health Risk Detection and Holistic Well Being Enhancement in the Information Technology Workforce

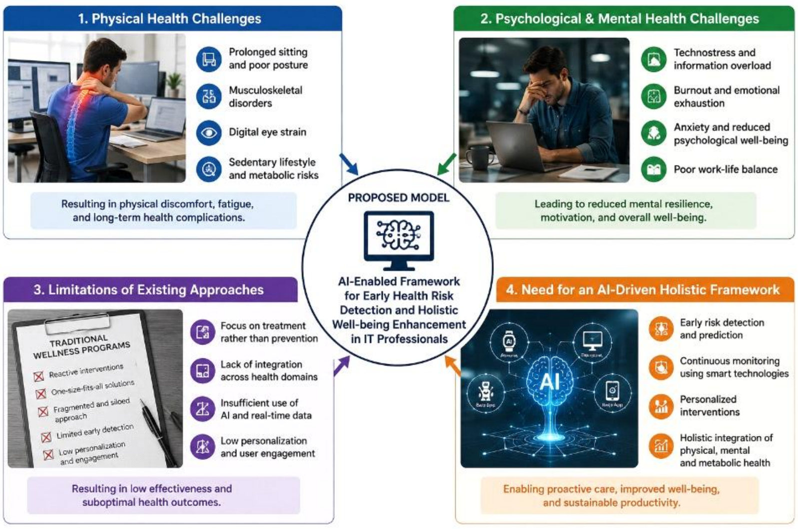
Santhosh Kumar Poudapally[1], M S Dayananda Swamy[1]*

[1]CMR University, HRBR Campus, Bangalore, Karnataka 560043
**Corresponding Author Mail ID:*dayananda.s@cmr.edu.in

Abstract: The rapid growth of the Information Technology (IT) industry has significantly increased occupational health challenges among employees, including musculoskeletal disorders, digital eye strain, technostress, burnout, anxiety, sedentary lifestyle-related metabolic risks, and poor worklife balance. Traditional workplace wellness programs often address these issues in isolation and rely on reactive interventions after symptoms become clinically evident. This study proposes a conceptual Artificial Intelligence (AI)-driven framework for early health risk detection and holistic well-being enhancement among IT professionals. The framework integrates computer vision-based ergonomic assessment, wearable sensor technologies, predictive analytics, and mobile health applications to continuously monitor physical, psychological, and metabolic health indicators. AI algorithms are utilized to identify early signs of stress, fatigue, cardiovascular risks, and workplace-related disorders, enabling timely and personalized interventions. The proposed model is supported by the Job DemandsResources model, Biopsychosocial model, Health Belief Model, and Technology Acceptance Model to ensure both effectiveness and user acceptance. By shifting occupational healthcare from a reactive to a preventive and personalized approach, the framework has the potential to improve employee well-being, enhance productivity, reduce healthcare costs, and promote sustainable workforce management in the evolving digital workplace.

Keywords: Artificial Intelligence, Occupational Health, IT Workforce, Predictive Analytics, Wearable Technology, Burnout, Ergonomics, Workplace Wellness

Graphical Abstract



(Source Acknowledge: Chat GPT)

1. Introduction

1.1 Occupational health challenges in IT employees

IT professionals increasingly face a psychological phenomenon called "AI-induced job insecurity." "AI tools are getting embedded in software development and employees are experiencing more anxiety and fear about their roles being made redundant. The study suggests a direct correlation between the fast pace of AI adoption and the clinical symptoms of stress, such as insomnia and reduced cognitive focus. The paper highlights the chronic mental fatigue state experienced by mid-level developers, driven by the need to upskill and remain relevant, making AI-related technostress a leading occupational health hazard requiring organizational intervention and psychological support [1].This longitudinal study assesses the prevalence of musculoskeletal disorders (MSDs) of IT workers in home offices in the post-pandemic hybrid work era. The study revealed a 65% rise in chronic ailments relative to pre-pandemic office settings, especially "Text Neck" and lower back pain. The major factor found is the absence of ergonomic furniture and poor workstation posture in homes. The study highlights that remote work without corporate-mandated ergonomic standards poses a risk of long-term physical disability for IT workers. It concludes that the health of IT workers is now heavily dependent on the quality of their home-based infrastructure and proactive ergonomic training [2].The study addresses the epidemic of Computer Vision Syndrome (CVS) in the software engineering community. The study says 82% of the participants have clinical data showing the prevalence

of ocular issues, and persistent dry eye, redness and night-vision blurriness are identified as dominant occupational hazards. The rise of virtual meetings and long coding sessions typical for IT workflows after 2020 make these symptoms worse. The results demonstrate that prolonged staring at high-resolution screens suppresses the natural blink reflex and decreases the tear film stability. Ultimately, the paper recommends clinical ocular monitoring and workplace lighting adjustments as important but often overlooked components of IT occupational health management [3].

The present study introduces the "Sitting-Stress" paradigm and investigates the metabolic and cardiovascular consequences of sedentary behavior in the IT industry. Researchers followed professionals who spent an average of 11 hours a day sitting and discovered significant increases in arterial stiffness and early-onset hypertension. Crucially, the study found that regular exercise outside working hours was not sufficient to fully reverse the physiological damage caused by long periods of sitting at work. These findings suggest that the IT workforce is at risk for unique metabolic hazards that require integrated workplace interventions including standing workstations and mandatory movement micro-breaks to mitigate the long-term risk of cardiovascular disease [4].This study investigates the association of work-related rumination, blue light exposure and sleep quality among IT workers using wearable technology. The study shows that the high cognitive load of software development often results in mental "rumination" late into the night, significantly delaying the onset of restorative sleep. This process combined with too much screen time hinders melatonin production and increases evening cortisol levels, which can interfere with REM sleep cycles. Finally, the paper concludes that the "always-on" culture of the IT industry does not allow deep physiological recovery, leading to a cycle of chronic fatigue and impaired emotional regulation, and recommends sleep hygiene as an important pillar of employee well-being [5].

1.2 Mental and physical health concerns

IT profession lead to the high prevalence of upper-limb musculoskeletal disorders, especially Carpal Tunnel Syndrome (CTS) in the software developer population. Researchers studying repetitive strain patterns found that long-term use of keyboards and mice without ergonomic intervention causes significant compression of the median nerve. Symptoms are often missed in the early stages, leading to chronic neuropathy, the study says. It concludes that the IT industry needs more rigorous screening for repetitive strain injuries (RSI) and suggests that software-generated "rest reminders" are crucial in mitigating the physical toll of high intensity coding environments [6]. This research explores the 'hidden' mental health costs of

working from home for extended periods in the IT industry, specifically social isolation and emotional exhaustion. While remote work offers flexibility, the results indicate that the lack of face-to-face interaction leads to a significant decline in workplace belonging, and more "psychological detachment" problems.

And IT professionals working alone are 40% more likely to experience serious burnout than their hybrid counterparts, researchers found. To combat the rising tide of depression in the tech sector, the paper calls for a change in corporate culture to "social wellness" and the establishment of virtual peer-support networks [7]. Objective to explore direct correlation between sedentary work behaviors in the IT industry and increasing rates of metabolic obesity. Monitoring daily physical activity and Body Mass Index (BMI) of software professionals proves the "desk-bound" nature of the job is a major contributor to metabolic syndrome, a study indicates. Even after adjusting for diet, low non-exercise activity thermogenesis (NEAT) leads to substantial weight gain and insulin resistance. The results demonstrate that the IT industry is facing a long-term public health crisis and suggest the introduction of “active workstations” and the corporate incentives to be health-oriented [8].This longitudinal study explores the impact of technostress and information overload on the cognitive health of IT employees. With the increasing volume of digital communication (emails, Slack, Jira), workers are reporting a state of “cognitive fragmentation” that impairs decision-making and increases perceived stress levels. Research shows that the constant switching between complex tasks and communication channels results in high cortisol levels and mental fatigue.

The paper concludes that interventions for occupational health, such as “digital minimalism” and well planned “deep work” periods, are necessary to protect mental clarity and long-term productivity of tech workers [9]. the phenomenon of "boundary blurring" and studies the effect of the integration of work apps on personal devices on the psychological well-being of IT staff. The study says the inability to “switch off” after hours results in chronic work-related rumination and significant family-work conflict. Lack of control over these boundaries is associated with lower life satisfaction and greater prevalence of generalized anxiety disorder (GAD). The paper recommends “Right to Disconnect” policies in the IT industry to set clear temporal boundaries between work responsibilities and personal recovery time, to ensure continuous mental health [10].

1.3 Need for AI-driven preventive healthcare

The use of AI-based computer vision systems to provide real-time ergonomic feedback to office-based professionals. The AI system uses deep learning algorithms and pose-estimation

frameworks such as MediaPipe to detect bad sitting posture and repetitive movements that lead to musculoskeletal disorders. The AI-based approach differs from traditional ergonomic assessments by providing continuous, non-invasive monitoring and immediate corrective alerts. The study shows that this preventive technology reduces significantly the occurrence of neck and back pain in IT-heavy environments. This suggests that AI can be a primary tool for physical injury prevention for sedentary jobs [11].

This paper explores the wider scope of artificial intelligence in preventive health care by examining how it can analyze big data from wearables to predict health deterioration. The researchers point out in the context of occupational health how AI algorithms can track physiological markers, such as Heart Rate Variability (HRV) and sleep patterns, to predict burnout and cardiovascular risks prior to the manifestation of clinical symptoms. AI-powered predictive modeling moves healthcare from a reactive to a proactive model, allowing organizations to implement tailored “wellness interventions” for employees, the study claims. It concludes that AI is needed to handle the complex and chronic health problems that are related to the high-stress digital industries [12]. Figure 1 shows the Technology Acceptance Model (TAM) for AI-based screening in the IT

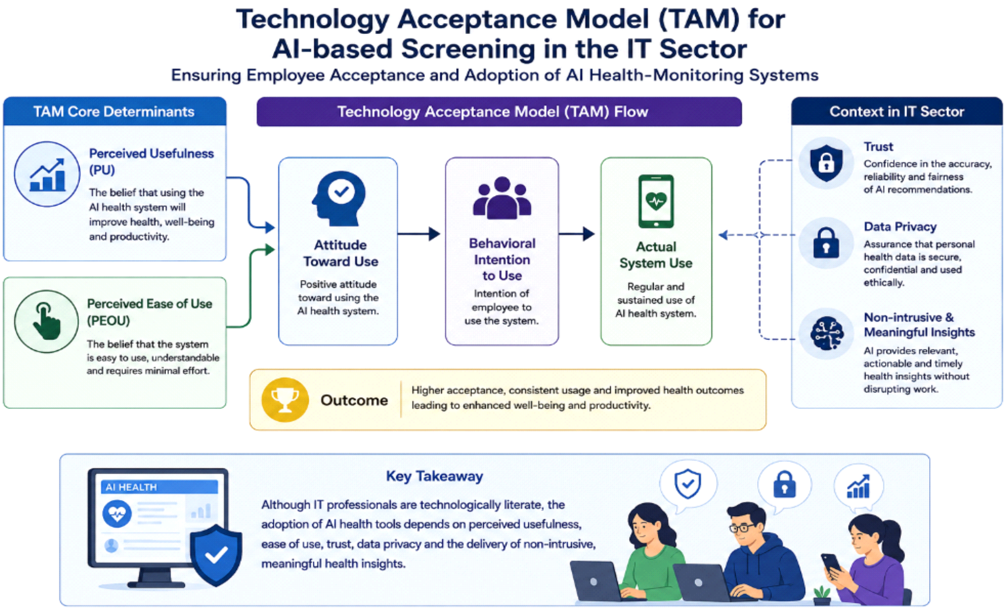


Figure 1: Technology Acceptance Model (TAM) for AI-based screening in the IT Sector (Source Acknowladgement :CHATGPT)

2. Objectives and significance of the study

To develop an integrated AI-driven health framework that addresses the physical, psychological, and metabolic health challenges of IT employees through a holistic and preventive approach.

To implement AI-based computer vision and deep learning techniques for real-time ergonomic monitoring and early detection of occupational health issues such as musculoskeletal disorders and computer vision syndrome.

To design a predictive screening system for identifying early signs of technostress, burnout, anxiety, cognitive overload, and AI-induced job insecurity among IT professionals.

To utilize wearable devices and predictive analytics for monitoring sedentary behavior and physiological parameters, enabling timely interventions to reduce metabolic and cardiovascular health risks.

To establish AI-powered digital wellness interventions, including automated rest reminders, sleep management recommendations, and worklife balance notifications, to enhance employee well-being and productivity.

Driving a Proactive Paradigm Shift: This study is important in its transition from reactive to proactive health care. It employs AI-driven predictive modeling to detect health deterioration, including nerve compression or cardiovascular strain, before it progresses to chronic disability or permanent burnout. Closing the "Regulatory Gap" in Hybrid Work: As physical ailments have increased dramatically with the shift to home-offices, this study provides a technological solution for organizations to meet their duty of care for remote employees where traditional ergonomic inspections are not possible.While AI continues to evoke "occupational stress" among many developers, this research re-frames AI as a protective ally. This change is essential in raising the psychological well-being and tech-acceptance levels of the workforce [14].The study emphasizes that physical activity alone is not enough to counteract IT-related risks since it addresses the "Sitting-Stress" paradigm. Its importance is to advance a system which integrates standing work stations and micro-breaks for movement into the everyday digital work process. Economic and Organizational Sustainability: The adoption of this framework is expected to reduce absenteeism, decrease healthcare costs, and increase long-term productivity for technology firms. The model also supports a more healthy and sustainable digital economy by protecting the tech sector's 'human capital'[15].

3. Literature Review

3.1. Work Stress, Burnout, Depression and Anxiety

The IT industry's psychological landscape is increasingly defined by high-intensity stressors that breed clinical mental health challenges. It has been shown that IT professionals are prone to high oxidative stress and physiological burnout due to continuous cognitive workload of their work [16]. In the post-COVID-19 era, almost 45% of IT workers have reported moderate-to-severe levels of anxiety and depression, primarily fueled by job insecurity and the pressure of rapid upskilling [17]. Daily "technostress" (the difficulty of adapting to frequent software updates and technical glitches) has been shown to directly lead to evening emotional exhaustion and long-term burnout [18]. Moreover, research on software developers suggests that persistent burnout is frequently mediated by "role ambiguity" and the "always-on" culture of agile development environments [19]. Recent longitudinal evidence indicates that these psychological stressors are associated with a decrease in professional efficacy and an increase in generalized anxiety disorder (GAD) in mid-career professionals without organizational interventions [20].

3.2 Sedentary Lifestyle and Physical Health Risks

The sitting "workstyle" of IT professionals has now been identified as a leading cause of chronic physical disability. Studies of the era of hybrid work show that IT workers spend 10.5 to 11 hours a day sitting, which significantly increases the risk factors for cardiovascular diseases, even if they do sports outside of work [21]. This long duration of sitting combined with poor workstation ergonomics in home-office environments has led to a 65% increase in musculoskeletal disorders, especially "Text Neck" and chronic lower back pain [22]. Besides skeletal problems, sedentary IT work is also directly related to increase in Body Mass Index (BMI), leading to metabolic obesity and insulin resistance [23]. Repetitive strain injuries, especially Carpal Tunnel Syndrome, are still prevalent in the software engineers due to high frequency usage of keyboard and mouse without ergonomic intervention [24]. The paradigm of 'sitting-stress' is also demonstrated to increase arterial stiffness which is a cause for concern as it leaves the IT workforce vulnerable to early onset of hypertension and Type 2 Diabetes [25].

3.3 Workplace Wellness Programs (WWPs)

There are workplace wellness programs, but a wide gap exists between availability and employee health outcomes. It is important to assess the effectiveness of workplace wellness programs. Many IT companies have adopted comprehensive digital wellness suites but the effectiveness of their programs are frequently undermined by high workloads and low

employee engagement [26]. Studies on the effect of WWPs on IT productivity indicate that programs that emphasize "holistic wellness" (i.e., mental, physical and social well-being) have higher retention rates than programs emphasizing only physical fitness [27]. Some new practices in the tech industry have even added "integrated wellness" [28], which involves weaving health interventions into the software development lifecycle to make employees less resistant. However, important obstacles for IT staff members in traditional programs include lack of time and "wellness fatigue" [29]. Structured ergonomic support and specific mental health protocols adapted to high-pressure digital work are increasingly being identified as effective interventions [30].

1.4 AI and Digital Health Applications

The use of Artificial Intelligence in occupational health is a shift towards a more proactive and personalized healthcare paradigm. Wearables can monitor physiological markers with machine learning in digital health applications to predict burnout and cardiovascular risks before the onset of clinical symptoms [31]. AI-based computer vision systems utilizing pose-estimation frameworks such as MediaPipe can continuously and non-invasively monitor ergonomics and provide corrective feedback in real-time to prevent musculoskeletal injuries [32]. Furthermore, workplace sensor-based interventions provide automated "nudges" to IT employees to engage in movement micro-breaks and mindfulness, thereby reducing cognitive fragmentation [33]. The "dark side" of AI generates technostress, but the use of AI in preventive health alleviates the adverse effects of information overload and digital exhaustion [34]. Innovative developments of machine learning algorithms enable real-time detection of stress at work from Heart Rate Variability (HRV) and typing patterns, providing a scalable approach for remote management of an IT workforce [35].

4. Research gaps

A critical review of current literature points to a number of significant research gaps that necessitate a new approach to occupational health in the IT sector. First, there is a profound fragmentation in current studies that examine musculoskeletal, psychological and metabolic health as separate phenomena instead of as interwoven effects of the same digital environment. This siloed approach does not recognize the manner in which physical pain frequently drives psychological burnout. There is a void in integrated conceptual frameworks that treat the employee as a complete person. In terms of health interventions, today's interventions are still largely reactive, dealing with conditions such as carpal tunnel syndrome or clinical depression after they have appeared, rather than using predictive analytics to intervene in the sub-clinical phase. Figure 2 represents AI- enabled Digital Mental Health Support for IT Professionals.

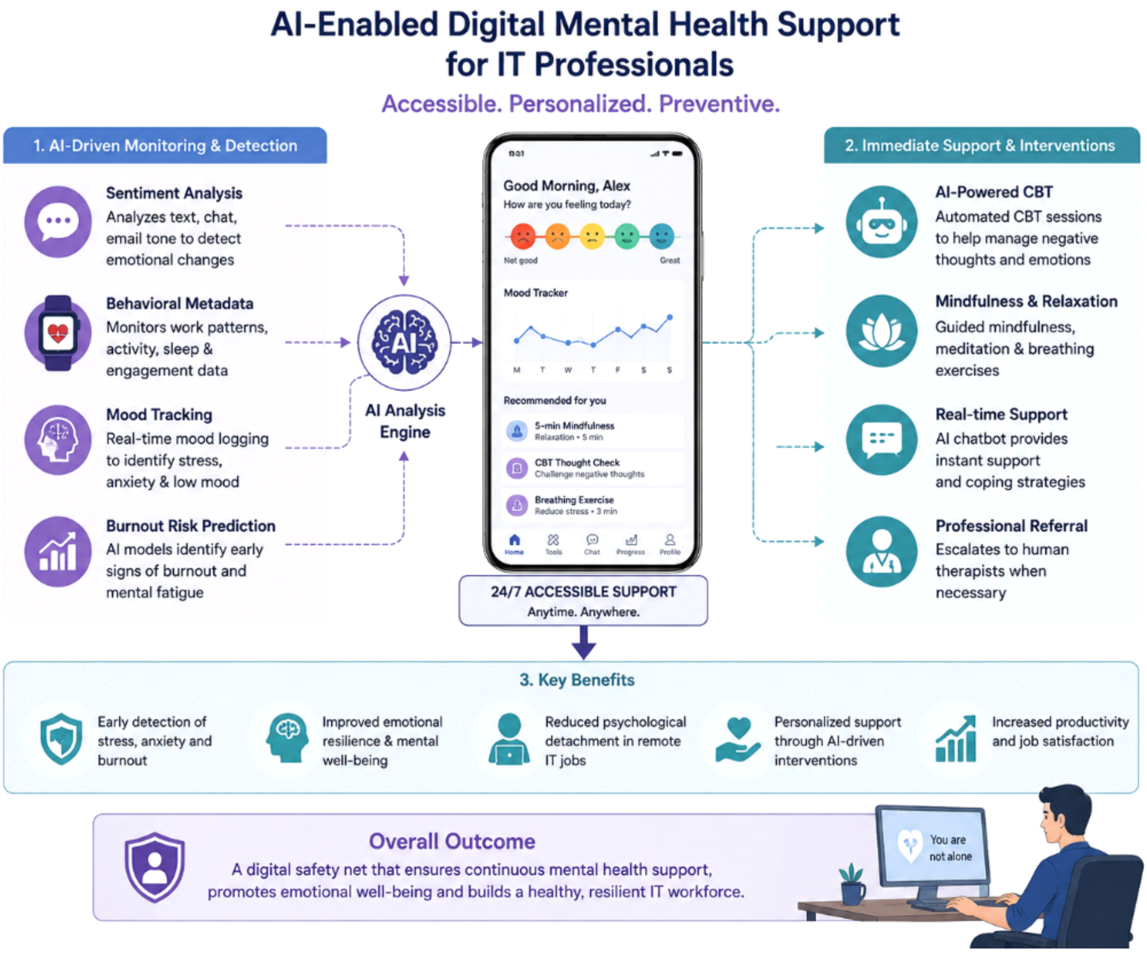


Figure 2: AI- enabled Digital Mental Health Support for IT Professionals

(Source Acknowladgement: CHATGPT)

There's also a glaring lack of privacy-preserving ergonomic solutions tailored for the remoteand hybrid work models that have dominated the industry since the pandemic. Furthermore, current wellness practices tend to overlook the "productivity-wellness" paradox, where health-related notifications tend to interrupt deep-work and flow states important in software development, resulting in higher user fatigue levels and decreased employee engagement. Most notably, despite research describing "AI-induced job insecurity" as a contemporary occupational hazard, there is a conspicuous lack of frameworks that harness AI in a benign fashion to counteract the technostress it engenders. Finally, while there is evidence that traditional exercise cannot fully compensate for the "sitting-stress" associated with 11-hour workdays, the industry lacks an automated data-driven system to enforce the exact metabolic micro-breaks needed to prevent long-term cardiovascular deterioration.

5. Theoretical Foundations

5.1 Job Demands-Resources (JD-R) Model

The JD-R model provides a central framework for understanding IT burnout, splitting work characteristics into demands and resources. In high-pressure tech contexts, demands such as tight deadlines and constant upskilling undermine health, while resources such as organizational support and technological tools foster engagement. Research indicates that the risk for chronic exhaustion increases dramatically when the IT-related job demands, such as "technostress", exceed the resources available [36]. The application of this model to AI-driven frameworks indicates that AI can be a critical "job resource" by automating health monitoring and reducing the cognitive load required for self-care [37].

5.2 Biopsychosocial Model

The Biopsychosocial model offers an integrated approach, emphasizing that the health of IT professionals is a complex interaction of biological, psychological and social factors. For example, musculoskeletal pain in software engineers (biological) is typically exacerbated by the anxiety related to work (psychological), and social isolation from remote work environments (social) [38]. This model supports the need for a 'integrated' screening framework as it demonstrates that physical interventions such as ergonomics are not sufficient unless they also address the psychological and social stressors inherent in digital workflows [39]. Table 1 represents Major Occupational Health Challenges in IT Professionals and Their Consequences

Table 1: Major Occupational Health Challenges in IT Professionals and Their Consequences

S. No	Health Domain	Occupational Challenge	Major Causes	Potential Consequences
1	Physical Health	Musculoskeletal Disorders (MSDs)	Poor ergonomics, prolonged sitting, repetitive keyboard and mouse use	Neck pain, back pain, Carpal Tunnel Syndrome, chronic disability
2	Visual Health	Computer Vision Syndrome (CVS)	Prolonged screen exposure, reduced blinking, poor lighting	Dry eyes, blurred vision, headaches, ocular fatigue
3	Mental Health	Technostress and Burnout	Information overload, rapid technological changes, AI-induced job insecurity	Anxiety, depression, emotional exhaustion, reduced productivity
4	Metabolic Health	Sedentary Lifestyle and Sitting-Stress	Long sitting duration and low physical activity	Obesity, insulin resistance, hypertension, cardiovascular disease
5	Social Well-being	Work–Life Imbalance	Remote work, boundary blurring, always-on culture	Family conflict, social isolation, reduced life satisfaction
6	Cognitive Health	Cognitive Fragmentation	Frequent task switching and digital interruptions	Mental fatigue, poor concentration, impaired decision-making

5.3 The Health Belief Model (HBM)

Health Belief Model is important to predict IT employees’ involvement in preventive interventions. It suggests that people are more likely to engage in healthy behaviours such as taking micro-breaks for movement when they feel that the threat of ‘sitting-stress’ is high and when they perceive the intervention as appropriate and easy to implement [40]. HBM studies on digital health indicate that IT professionals may need “cues to action” such as AI-driven automated nudges to overcome the barriers of high-intensity coding tasks and perceived lack of time [41].

5.4 Technology Acceptance Model (TAM)

AI-based screening is proposed in the proposed framework, thus the Technology Acceptance Model is critical to ensure the user adoption. TAM proposes that the intention of an employee to use a health-monitoring system is mainly determined by the “perceived usefulness” and “perceived ease of use” [42]. In the context of the IT sector, researchers have found that although IT professionals are technologically literate, their acceptance of AI health tools is

highly dependent on trust, data privacy and the extent to which the AI offers non-intrusive, meaningful health insights [43].

6. Proposed AI-Based Integrated Health Screening Framework

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Table 2. Components of the Proposed AI-Driven Integrated Health Framework

S. No	**Framework Component**	**AI Technology Used**	**Health Parameter Monitored**	**Expected Outcome**
1	Ergonomic Monitoring	Computer Vision and Pose Estimation	Sitting posture, neck angle, repetitive movement patterns	Reduction in MSDs and posture-related injuries
2	Mental Health Screening	Sentiment Analysis and Machine Learning	Stress, burnout, mood variations, anxiety indicators	Early psychological intervention
3	Wearable Health Monitoring	Predictive Analytics and AI Algorithms	HRV, sleep quality, physical activity, sedentary duration	Prevention of metabolic and cardiovascular risks
4	Digital Wellness Assistance	AI Chatbots and Automated CBT	Emotional well-being and coping behaviors	Improved resilience and mental health
5	Lifestyle Modification	Behavioral Analytics and Smart Nudging	Movement breaks, hydration, exercise adherence	Improved physical activity and healthy habits
6	mHealth Integration	Mobile Health Platforms	Integrated health records and wellness metrics	Continuous personalized healthcare support
7	Organizational Analytics	Population Health Analytics	Workforce-level health trends	Reduced absenteeism and improved productivity

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6.5 Preventive Intervention Model

The power of AI-driven health interventions lies in the capacity to deliver personalized recommendations based on a user's biometric and behavioral data. Unlike general health advice, AI systems analyze a user's unique heart rate variability, physical activity patterns and sleep metrics to provide customized guidance. Precision health recommendations such as targeted dietary changes or personalized recovery exercises are significantly more effective in improving employee health outcomes than generic wellness advice [44]. These systems may employ machine learning algorithms to adapt to the changing health status of the user to ensure that interventions are relevant and achievable within the constraints of the daily schedule of an IT professional [45].

7. Mental health assistance

Digital mental health support is a crucial tool in responding to the psychological needs of the IT sector. AI-enabled platforms, including automated cognitive behavioral therapy (CBT) and real-time mood tracking, offer a low-threshold way for employees to access support for anxiety and depression. Research has shown that digital mental health tools can identify early signs of burnout through sentiment analysis and behavioral metadata, and provide immediate interventions or referrals to professionals [46]. Such systems provide a "safety net" that is accessible 24/7, solving the problems of "psychological detachment," which are typical in remote IT jobs, and building emotional resilience through custom mindfulness and stress-reduction protocols [47].

7.1 Programs for lifestyle change

The lifestyle modification programs for IT professionals have a focus on the "small-win" approach for changing sedentary habits through digital nudging. These programs encourage

micro-changes in behavior, such as standing during meetings or doing periodic stretching to combat the "sitting-stress" paradigm. Technology-mediated lifestyle coaching has been shown to be effective in achieving successful long-term changes in physical activity and nutrition [48], even when working in high-stress jobs. These programs, which incorporate behavioral economic principles like gamification and social competition, circumvent the inertia of sedentary work, thereby reducing long-term risks for metabolic syndrome and cardiovascular disease [49].

7.2 Interventions towards workplace wellness

In the technology sector, modern workplace wellness interventions (WWIs) are moving towards an integrated, "culture-first" approach. Wellness interventions are no longer considered extracurricular, but integrated into the organizational workflow — "wellness hours" or ergonomic subsidies for home offices. According to studies, organizations that use structured WWIs, like mandated movement micro-breaks and screen-free areas, see higher employee job satisfaction and lower rates of absence [50]. These interventions are a structural job resource, thereby reducing the health impairment process as described in the JD-R model, and promoting a sustainable work-life balance [51].

7.3 Mobile health app integration

The integration of mobile health (mHealth) applications within the IT workspace creates a fluid ecosystem for health monitoring and intervention delivery. mHealth applications pull in data from smart phones, wearables and desktop ergonomic tools to form a central "health dashboard" for the employee. Studies show that the availability of mHealth tools can be a way of improving adherence to health goals and providing "cues to action" in real time [52]. Moreover, the integration of these applications with corporate health platforms allows for data-based planning of organizational health, if protocols for privacy preservation are adopted to ensure employee trust and the adoption of the system [53].

8. Expected Outcomes and Implications

8.1 Identifying health risks early

The framework enables a paradigm shift from reactive medical care to proactive health management. Using AI-driven predictive analytics and computer vision, the system detects sub-clinical indicators of decline in health, including minute shifts in heart rate variability

(HRV), arterial rigidity from prolonged inactivity, or initial postural imbalances, well before they manifest as chronic ailments like Carpal Tunnel Syndrome or hypertension.

This early detection capability means that "pre-symptomatic" intervention is possible and metabolic and musculoskeletal risks can be mitigated through data-driven cues. The model converts the high frequency biometric data into actionable insights, allowing the IT employee to be alerted to physiological strain at the most treatable stages thus preventing a transition from acute stress to permanent disability.

The framework acts as a psychological buffer for IT professionals by alleviating the root causes of technostress and "AI-induced job insecurity." Drawing on the JD-R model, the system offers necessary "job resources" such as automated mental health support and digital boundary protocols, which can alleviate the health-impairment process induced by high-intensity coding and information overload. The use of prompts for "Right to Disconnect" and automated cognitive-behavioral tools help address work-life blurring and late-night rumination. Hence, by regulating evening cortisol and sleep hygiene, the model significantly reduces the incidence of emotional exhaustion and clinical burnout and fosters long-term psychological resilience in a volatile tech environment.

8.2 Physical health and cognitive performance have a symbiotic relationship.

The framework also helps to mitigate the "sitting-stress" paradigm and reduce digital eye strain to ensure IT professionals remain in optimal physical comfort, a prerequisite for the "flow states" needed for complex software development. This AI-driven model uses "smart nudging" timing interventions at natural breaks in the user's cognitive workload, thus avoiding "cognitive fragmentation" unlike traditional wellness programs that break in on productivity. When employees feel better with more energy, mental clarity and sense of well-being it leads to better decision making, better code, and longer engagement, and makes clear that employee health is a key driver of organizational productivity.

8.3 Benefits to Employees, Organizations, and Public Health

The impact of the integrated framework is to the three critical levels:

At the employee level it enhances physical longevity and quality of life, defending against the "silent killers" of the IT industry such as ocular fatigue and metabolic syndrome.

From an organizational perspective, it creates a sustainable workforce by significantly reducing absenteeism, healthcare costs, and turnover rates, and enhancing the value proposition of the employer in a competitive talent market.

At the public health level, the framework addresses a growing crisis, preventing early-onset cardiovascular disease and chronic mental health problems among the large IT demographic, thereby reducing the long-term burden on national healthcare systems. This holistic approach guarantees that the digital economy is not at the expense of human capital, but rather helps to foster a healthy and sustainable society.

7. Conclusion and Future Directions

The rapid digital transformation of the Information Technology sector has significantly increased the prevalence of occupational health challenges, including musculoskeletal disorders, digital eye strain, technostress, burnout, sedentary lifestylerelated metabolic risks, and worklife imbalance. Traditional workplace wellness programs often address these issues in isolation, limiting their effectiveness in promoting holistic employee well-being. The proposed AI-driven integrated health framework offers a comprehensive and proactive solution by combining computer vision, wearable technologies, predictive analytics, and digital health interventions to continuously monitor and manage physical, psychological, and metabolic health risks among IT professionals. By enabling early risk detection, personalized recommendations, and automated preventive interventions, the framework has the potential to reduce disease burden, enhance employee productivity, improve mental well-being, and foster healthier workplace environments. Furthermore, the integration of AI technologies into occupational healthcare can support data-driven decision-making and sustainable workforce management. The proposed framework serves as a foundation for future empirical research and real-world implementation, contributing to the advancement of AI-enabled occupational health systems and promoting long-term well-being in the evolving digital workplace.

Conflict of Interest

Authors claim that there is no conflict of interest among

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