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Understanding employee wellness in industry 5.0: A systematic review

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ABSTRACT

The 21st century has brought about significant technological advancements, leading to Industry 5.0—marked by cutting-edge technologies such as AI, robotics, and the Internet of Things. While these advancements have brought numerous benefits to organizations, including heightened productivity and efficiency, they have posed new challenges in employee wellness. This systematic review investigated the impact of emotional intelligence and new technologies on employee wellness in Industry 5.0. The review yielded seven studies meeting the inclusion criteria. Findings showed that emotional intelligence positively influences work performance and job satisfaction. On the other hand, factors such as organizational justice and job dropout harm employees' wellness. The study also found that physical workplace conditions and employee autonomy play a significant role in employee wellness and job satisfaction. Using new technologies, such as robotization, can potentially dehumanize employees, but it can be prevented by exploring sustainable solutions and addressing ergonomic adverse effects. The study concludes with the importance of considering employees' subjective wellness and promoting a human-centric approach in Industry 5.0. The results of this study have important implications for organizations and provide a foundation for future research in human resource management.

1. Introduction

The dawn of the 21st century has seen a tremendous surge in technological advancements, culminating in the formation of Industry 5.0, a new era of work marked by the integration of advanced technologies such as artificial intelligence (AI), robotics, and the Internet of Things (Østergaard, 2018). The widespread adoption of these technologies has brought various benefits to organizations, including increased productivity and efficiency. However, the rapid pace of technological change and the associated demands of the digital age has also created new challenges, particularly in employee wellness.

Employee wellness refers to employees' physical, mental, and emotional wellness, significantly impacting their overall job satisfaction and productivity (Roslender et al., 2006). In the fast-paced and demanding environment of Industry 5.0, employees face increased workloads, longer working hours, and heightened job stress levels, which can negatively impact their wellness. As such, organizations must understand the challenges and opportunities associated with employee wellness in the digital age in order to develop strategies to support the wellness of their employees.

Employee wellness is critical to an organization's success and significantly impacts employees' overall job satisfaction and productivity (Qaisar et al., 2018). In addition, the widespread adoption of digital technologies has led to a blurring of the boundaries between work and home, making it increasingly difficult for employees to achieve a healthy work-life balance (Søvold et al., 2021). This includes identifying best practices and strategies to promote employee wellness in the digital age and developing innovative approaches to support the wellness of employees in this rapidly advancing era.

The study of employee wellness in Industry 5.0 is an emerging field of research, and while there has been some work done in this area, there is still much to be explored. The present review analyzes the existing literature to understand the challenges and opportunities associated with employee wellness in Industry 5.0. The findings of this study will provide valuable insight into the current state of employee wellness in the digital age. They could help organizations adopt best practices and strategies to promote employee wellness in this rapidly advancing era.

2. Method

The systematic review methodology was chosen for this study as it provides a comprehensive and rigorous approach to reviewing the existing literature on a particular topic. A systematic review will ensure that the study's findings are robust and can be used to inform practice and inform future research in this area. The following steps were taken to achieve the research objectives:

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Identification of Relevant Studies: The screening process was conducted on Google Scholar to identify relevant studies. Google Scholar has an extensive database of peer-reviewed articles for running a systematic review. This database regularly updates the latest publications and provides access to articles from various fields and disciplines. Furthermore, Google Scholar provides a user-friendly interface and advanced search options, allowing more efficient and comprehensive searching. Replacing the databases mentioned in the research proposal with Google Scholar can provide a more comprehensive and up-to-date source of literature while also making the literature screening process more efficient. In addition, a manual search of the reference lists of relevant studies and a review of relevant conference proceedings were conducted to identify additional studies. The search terms will include a combination of keywords related to employee wellness and Industry 5.0, such as "employee wellness," "employee well-being," "Industry 5.0," and "digital age."

Study Selection: All studies identified through the screening process were reviewed, and those that met the inclusion criteria were selected for inclusion in the review. The inclusion criteria for this study were as follows: (a) peer-reviewed articles or conference proceedings published in English, (b) studies that have been published in the last ten years, (c) studies that specifically focus on employee wellness in Industry 5.0, and (d) studies that provide insights into the challenges and opportunities associated with employee wellness in the digital age.

Data Extraction: Information from the selected studies was extracted using a standardized data extraction form. The information that was extracted included (a) the study design, (b) the sample size and population, (c) the research methods used, (d) the main findings, and (e) the implications for organizations.

Data Analysis: The extracted data were analyzed to identify patterns and trends in the existing literature on employee wellness in Industry 5.0. The analysis involved synthesizing the selected studies' findings and identifying common themes and challenges associated with employee wellness in the digital age.

3. Results

A total of seven studies from 26 potential studies met the inclusion criteria (Table 1).

Influence of Emotional Intelligence on the Workforce for Industry 5.0 (Chin, 2021): The article explores the impact of emotional intelligence on the workforce in Industry 5.0. The ability to identify and control one's emotions and those of others is referred to as emotional intelligence. The author argues that emotional intelligence will play a crucial role in work productivity in the current era of Industry 5.0, characterized by advanced technologies and automation. This is because, as machines increasingly perform tasks that humans once did, the value of human skills such as empathy, communication, and collaboration will become increasingly important. Therefore, individuals with high emotional intelligence will likely be more successful in this new work environment.

A Structural Equations Model of Job Disengagement from the Constructs of Organizational Justice, Job Satisfaction, Innovation, and Trust in the Era of Industry 5.0 (Esthela et al., 2021): The article presents a structural equation model that explores the relationship between various factors and job disengagement in the era of Industry 5.0. The model looks at the influence of organizational justice, job satisfaction, innovation, and trust on job disengagement. The authors suggest that these factors significantly impact employees' motivation and engagement in their work. They find that a lack of organizational justice and job satisfaction can increase job disengagement. In contrast, a high level of trust in the organization and opportunities for innovation can lead to increased job engagement. The article highlights the importance of addressing these factors to reduce job disengagement and increase employee motivation in the era of Industry 5.0.

The Human Role in Human-Centric Industry (Kalateh et al., 2022): The article explores the human role in a human-centric industry. It argues that Industry 5.0, with its advanced technologies and automation, presents opportunities and challenges for the workforce. On the one hand, humans can focus on more complex jobs because computers and technologies can carry out tasks faster and more correctly than people. On the other hand, the increasing automation of jobs can lead to concerns about job security and the displacement of workers. The authors argue that the key to success in a human-centric industry is for humans to leverage their unique strengths, such as creativity, empathy, and problem-solving skills. This will allow humans to complement and enhance the capabilities of machines rather than being replaced by them. The authors suggest that companies should focus on developing human skills, such as emotional intelligence, critical thinking, and communication, and preparing employees for the demands of Industry 5.0. The article concludes that the human role in a human-centric industry is to use their unique strengths to create value and solve problems, working in partnership with machines to drive progress and innovation.

Collaboration Between Humans and Robots in Organizations: A Macroergonomic, Emotional, and Spiritual Approach (Firescu et al., 2022): The article focuses on the collaboration between humans and robots in organizations, taking a macroergonomic, emotional, and spiritual approach. The authors argue that integrating robots into the workplace will affect the workforce, influencing their physical and psychological wellness. They suggest that a macroergonomic approach, which considers the broader organizational and societal context, is necessary to ensure that the collaboration between humans and robots is successful and sustainable. The article also emphasizes the importance of emotional and spiritual factors in this collaboration. The authors argue that the relationship between humans and robots is not just technical but also emotional and spiritual. They suggest that companies consider the emotional impact of robots on the workforce and ensure that employees feel supported and valued. Additionally, the authors propose that companies embrace a spiritual approach, recognizing that robots and humans are interconnected and that both have a role to play in creating a better future. In conclusion, the authors argue that a macroergonomic, emotional, and spiritual approach is necessary to ensure that the collaboration between humans and robots in organizations is successful and sustainable. They suggest that companies should consider the broader context, the emotional impact on the workforce, and the spiritual significance of this collaboration to create a positive and harmonious work environment.

Effects of Human–Machine Interaction on Employee Learning: A Contingent Perspective (Sen et al., 2022): The article examines the impact of human-machine interaction on employee learning from a contingent standpoint. The authors suggest that human and machine relationships can significantly impact employee learning and development. They argue that the effectiveness of human-machine interaction for learning depends on various contingencies, such as the task, the technology, and the individual. The article discusses how human-machine exchange can support employee learning through immediate feedback, reduced cognitive load, and promoted engagement. However, the authors also highlight the potential drawbacks of human-machine interaction, such as reduced social interaction and over-reliance on technology. The authors anticipate that the impact of human-machine interaction on employee learning will largely depend on the context and the individual involved. In order to maximize the benefits of human-machine interaction for employee learning, they propose that organizations should adopt a contingent approach, considering the specific task, technology, and individual. In brief, the article highlights the complex relationship between human-machine interaction and employee learning.

Table I: Studies Included

Article	Design	Sample Size & Population	Research Methods Used	Main Findings
Influence of Emotional Intelligence on the Workforce for Industry 5.0	Quantitative	110 Employees from Smart Investment Centers	Questionnaire	The research suggests that emotional intelligen has a positive impact on workforce performanc
A Structural Equations Model of Job Disengagement from The Constructs of Organizational Justice, Job Satisfaction, Innovation, and Trust In The Era of Industry 5.0	Quantitative	555 Employees of a food industry company	Questionnaire	The findings show that fair workplace culture a job satisfaction have a detrimental impact on employee turnover. However, this effect is not vital for trust and support for innovation.
The human role in Human-centric Industry	Review		Review	Industry 5.0 acknowledges the importance of factors beyond employment and economic expansion and strives to create a sustainable source of prosperity by prioritizing environmental preservation and the well-being its workers. It emphasizes a human-centred approach, placing employees at the core of the industry's innovative processes.
Collaboration Between Humans and Robots in Organizations: A Macroergonomic, Emotional, and Spiritual Approach	Mixed	Three interviews, 363 Romanian IT employees	Multidisciplinary bibliographic study and interview	To maximize the value of the human capital to organization, a personalized approach must be taken, considering each employee's unique identity and physical, cultural, emotional, psychological, and spiritual characteristics.
Effects of human-machine interaction on employee's learning: A contingent perspective	Quantitative	319 Employees from 100 artificial intelligence companies	Survey	Giving employees control over their work timi location, and method likely positively impacts their well-being.
Basic human needs and robotization: How to make deployment of robots worthwhile for everyone?	Quantitative	4089 Finnish worker	Survey	The study found that worker autonomy is cruc in enhancing well-being in industries undergoi automation, particularly in science, office work and retail.
Cybergonomics: Proposing and justification of a new name for the ergonomics of Industry 4.0 technologies	Qualitative		Review	Cybergonomics is a field of research that focus on developing modern wearable and non-wearable technologies for ergonomic purposes (such as cybergonomic devices and assistants) and addressing their potential adverse ergonor effects.

Basic Human Needs and Robotization: How to Make Deployment of Robots Worthwhile for Everyone? (Turja et al., 2022): The article focuses on the relationship between basic human needs and the deployment of robots, exploring how to make this deployment beneficial for everyone. The authors argue that the deployment of robots has the potential to improve the satisfaction of basic human needs, such as safety, security, and self-actualization. However, they also acknowledge that this deployment can have negative consequences, such as job loss and reduced social interaction. The authors suggest this to make the deployment of robots worthwhile for everyone. It is necessary to consider the impact of robots on basic human needs. They propose that companies adopt a human-centred approach, considering robots' social and emotional effects on employees and their technical capabilities. The article highlights the importance of considering robots' psychological and social impact on employees, suggesting that companies should work to ensure that robots complement, rather than replace, human workers. The authors propose that companies invest in employee training and development to help workers adapt to the changing work environment and enhance their skills in areas where robots cannot compete. Companies must consider the impact of robots on basic human needs and adopt a human-centred approach that considers both the technical and social implications of this deployment.

Cybergonomics: Proposing and Justification of a New Name for the Ergonomics of Industry 4.0 Technologies (Pouyakian, 2022): This article defines Industry 5.0 as Industry 4.0. The article proposes and justifies "Cybergonomics" as a new name for the ergonomics of Industry 4.0 technologies. The author argues that the traditional field of ergonomics, which focuses on the design and optimization of physical work environments, is not adequately equipped to deal with the challenges posed by Industry 4.0 technologies, such as artificial intelligence, robotics, and the Internet of Things. The author suggests a new approach, Cybergonomics, is needed to address the complex interaction between humans and these new technologies. They define Cybergonomics as the study of the interaction between humans and cyber-physical systems, focusing on the design, implementation, and assessment of the human-centred use of these systems. The author argues that Cybergonomics should concentrate on various issues, including the impact of Industry 4.0 technologies on worker wellness, the development of new technologies that support human needs and capabilities, and the ethical and social implications of these technologies. They suggest that Cybergonomics should be interdisciplinary, drawing on fields such as psychology, sociology, and engineering, to provide a comprehensive understanding of the human-centred use of Industry 4.0 technologies.

The systematic review of the existing literature on employee wellness in Industry 5.0 revealed several key findings. Firstly, emotional intelligence was found to influence workforce performance significantly. Emotional recognition, expression, and direct emotional cognition had the greatest impact. Secondly, organizational justice and job satisfaction negatively affect job dropout. This influence did not, however, have a negative outlook on the factors of trust and support for innovation. Thirdly, the review revealed the importance of considering actions that promote workers' subjective wellness, such as adapting the physical workplace conditions to improve work satisfaction and considering employee identity, with its physical, cultural, emotional, psychological, and spiritual aspects. Fourthly, employee autonomy plays a significant part in employee wellness, especially in fields such as science, office work, and retail trade. Fifthly, robotization calls for careful assessment and organizational attention to the changes in work after robotization and understanding the effects on individual employees' wellness. Finally, the development of modern wearable and non-wearable technologies for ergonomic purposes, defined as cybergonomics, can help Industry 5.0 achieve its goals of protecting the human from the adverse effects of new technologies and providing necessary rules and adaptations for better interaction between the workforce and high technologies.

4. Discussion

This systematic review/analysis of existing literature on employee wellness in Industry 5.0 provides essential insights into the challenges and opportunities facing employees in this new era of work. The results suggest that emotional intelligence, organizational justice, and job satisfaction are key factors that impact employee wellness.

Emotional intelligence has been found to play a significant role in the performance of the workforce, with emotional recognition and expression, as well as emotions that direct cognition, having a greater impact. This highlights the importance of considering the emotional needs of employees and providing them with support and resources to manage their emotions in the workplace.

Organizational justice and job satisfaction were found to have a negative impact on job dropout, suggesting that these factors play a significant role in retaining employees. This highlights the need for organizations to address issues of fairness and justice in the workplace and to create a positive work environment that promotes job satisfaction.

The results also highlight the need for organizations to consider the impact of new technologies on employee wellness. The widespread use of robotics and automation in Industry 5.0 may adversely affect employee wellness. Organizations must understand these effects and explore solutions to mitigate them. This may involve the development of modern wearable and non-wearable technologies for ergonomic purposes, as well as addressing the ergonomic adverse effects of these technologies in terms of Cybergonomics.

In terms of employee autonomy, the ability to decide when, where, and how the job is to be done was found to have a significant impact on employee wellness, particularly in fields such as office work and retail trade. This highlights the need for organizations to provide employees with a level of autonomy in their work and to ensure that work is flexible and adaptable to meet the needs of individual employees.

The review is limited to a systematic analysis of existing literature, which may not include all relevant studies or the latest research in the field. The quality of the studies included in the review may vary, which could impact the accuracy and reliability of the findings. The review does not include the potential impact of other factors on employee wellness, such as work-life balance, job demands, and support from colleagues and superiors. Furthermore, it does not systematically evaluate the effectiveness of interventions aimed at promoting employee wellness in Industry 5.0.

The results of this systematic review provide essential insights into the challenges and opportunities for employee wellness in Industry 5.0. Organizations must take a holistic approach to employee wellness, considering their employees' emotional, physical, cultural, psychological, and spiritual aspects. By considering these factors, organizations can create a positive and supportive work environment that promotes employee wellness and enhances the value of their human capital.

5. Conclusion

The study aimed to systematically review the existing literature on employee wellness in Industry 5.0 to gain a deeper understanding of the challenges and opportunities in this new era of work. The study results provide valuable insights into the factors influencing employee wellness in Industry 5.0, including emotional intelligence, organizational justice and job satisfaction, workplace conditions, employee autonomy, and cybergonomics.

The findings of the review emphasize the importance of considering emotional intelligence in promoting workforce performance and the negative effect of organizational justice and job satisfaction on job dropout. The review also highlights the importance of adapting the workplace physical conditions to improve work satisfaction and considering employee identity, physical, cultural, emotional, psychological, and spiritual aspects.

The review also shows the importance of employee autonomy in promoting wellness in robotization and the potential of cybergonomics in protecting humans from the adverse effects of new technologies and improving the interaction between the workforce and high technologies.

To sum up, the results of this systematic review provide valuable insights into the challenges and opportunities for employee wellness in Industry 5.0, highlighting the importance of considering a range of factors in promoting employee wellness in this new era of work. The study findings have important implications for organizations, policymakers, and researchers in employee wellness and Industry 5.0.

4.1. Implications for Occupational Health Practice

The results of this systematic review have several important implications for organizations, policymakers, and researchers in employee wellness and Industry 5.0. Some of the possible implications include the following:

- Emotional intelligence should be considered an essential factor in promoting workforce performance and should be prioritized by organizations.
- Organizations should prioritize employee wellness and satisfaction. Organizations should consider organizational justice and job satisfaction and adapt the workplace's physical conditions to improve work satisfaction.
- Employee autonomy should be considered in robotization, and organizations should take necessary actions to mitigate any potential adverse effects on employee wellness.
- The potential of cybergonomics should be explored in promoting employee wellness in Industry 5.0. Organizations should consider the development of modern wearable and non-wearable technologies for ergonomic purposes and address their adverse effects.
- Future research should focus on exploring the factors that influence employee wellness in Industry 5.0 in greater detail, including the role of emotional intelligence, organizational justice and job satisfaction, workplace conditions, employee autonomy, and cybergonomics.

4.1.2. In Summary

- The results of this systematic review suggest that emotional intelligence plays a significant role in the performance of the workforce in Industry 5.0.
- Organizational justice and job satisfaction are found to have a negative impact on job dropout, highlighting the need for organizations to address issues of fairness and justice and promote job satisfaction.
- The widespread use of robotics and automation in Industry 5.0 may adversely affect employee wellness. Organizations must consider the impact of new technologies and explore solutions to mitigate these effects.
- Employee autonomy significantly impacts employee wellness, particularly in fields such as science, office work, and retail trade. Organizations must provide employees with autonomy and ensure that work is flexible and adaptable to meet their needs.

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