

Literature Review on Digital Competence, Work-Life Balance, and Technology Stress on Health Employee Performance in the Digital Era

Siti Ashfiyah

Program Studi S2 Administrasi Rumah Sakit, Universitas Muhammadiyah Surabaya

Email : sitiash0709@gmail.com

Article Info

Article history:

Accepted: 21 April 2025

Publish: 30 April 2025

Keywords:

Digital Competence,
Work-Life Balance,
Technology Stress,
Employee Performance,
Health Sector

Abstract

The development of digital technology in the health sector has had a significant impact on the way health workers work, requiring adequate mastery of digital competencies. Previous research shows that digital skills not only have an impact on work efficiency, but are also closely related to the emergence of so-called psychological stress technostress. In addition, work-life balance (WLB) has been identified as an important factor influencing employee satisfaction and performance, especially in a very dynamic work environment such as a hospital. This study aims to examine the relationship between digital competence, work-life balance, technology stress, and health employee performance through an approach literature review. The results of the study show that digital competence makes a positive contribution to performance if supported by appropriate management and training. Meanwhile, work-life balance has been proven to increase loyalty and productivity, while techno-stress is consistently negatively correlated with performance and psychological well-being. Organizational support through flexible work policies and mental health-oriented leadership are key strategies in managing the challenges of digitalization. These findings provide practical implications for human resource management in the health sector in creating an adaptive and sustainable work environment.

This is an open access article under the [Lisensi Creative Commons](https://creativecommons.org/licenses/by-sa/4.0/)

[Atribusi-BerbagiSerupa 4.0 Internasional](https://creativecommons.org/licenses/by-sa/4.0/)



Corresponding Author:

Siti Ashfiyah

Universitas Muhammadiyah Surabaya

Email : sitiash0709@gmail.com

1. INTRODUCTION

Development of digital technology in the system service Health brings fundamental changes in the work processes of health workers. Digital transformation requires mastery of digital competencies that are not only technical, but also include the ability to adapt to new technology, digital communications and information security.[1] emphasize that digital competence in the health sector is not just technical skills, but rather an integration of interpersonal skills, cross-generational collaboration, and knowledge management in the work environment.

However, intensive adoption of technology also has a psychosocial impact on health workers. The study [2] shows that excessive use of information and communication technology, otherwise known as *techno-invasion*, contributing to the emergence of emotional exhaustion and conflict between personal and work life. This is confirmed by [3] who found that digital administrative burden, as well as the pressure to stay connected online outside of working hours, were the main factors causing burnout in medical personnel.

On the other hand, work-life balance (WLB) is an important issue in maintaining mental health and productivity of health workers. (Reindy Christian Tiwatu et al., n.d.) stated that WLB

is influenced by setting working hours and providing fair incentives, which ultimately has an impact on job satisfaction in hospitals. Research [4] even shows that WLB has a positive influence on the performance of health workers, although it is mediated by organizational commitment as an intervening variable.

High digital competency without the support of a good managerial system has the potential to create high work pressure. Therefore, the role of digital organization and leadership becomes important. stated that organizations that implement digital leadership effectively are able to improve employee performance through strengthening work-life balance and adaptive management of work stress.

Based on this background, it is important to carry out a comprehensive literature review to identify the relationship between digital competence, work-life balance, technological stress, and managerial strategies on employee performance in the health sector. This is an important basis for formulating humane and adaptive organizational policies amidst the wave of digital transformation.

2. RESEARCH PURPOSES

The purpose of this literature review is to:

1. Examining the contribution of digital competence to employee performance in the sector service health.
2. Studying the influence of work-life balance on employee productivity and well-being.
3. Examining the impact of technology stress on work performance and mental health.
4. Identify managerial strategies in reducing the negative impacts of digitalization in the health work environment.

3. LIBRARY STUDY

Digital Competence in the Health Work Environment

Digital competency in the healthcare context includes more than just technical skills in using digital tools. According to [1] , this competency includes interpersonal skills, intergenerational collaboration, and knowledge management through digital media. Effective digital competency can drive operational efficiency, but also demands organizational support in the form of training and collaborative knowledge sharing systems. On the other hand [5] found that digital competence is not directly significant to service performance, but contributes to influence other variables such as work stress and work-life balance.

Work-Life Balance (WLB) and its Impact on Performance

Work-life balance is defined as an individual's ability to balance work demands with personal life. (Reindy Christian Tiwatu et al., n.d.) in his research on medical personnel in Manado shows that this balance really depends on reasonable working hours and comparable incentives. Furthermore, the study [4] shows that WLB contributes significantly to employee performance, both directly and through organizational commitment as a mediating variable. A work environment that supports life balance allows individuals to achieve higher job satisfaction and increase loyalty to the institution.

Technological Stress (Technostress) in the Era of Digitalization

Technology or stress concept *technostress* refers to the psychological stress resulting from constant exposure to digital technology in a work context. [2] explains that aspect *techno-invasion*, namely digital distractions that invade employees' personal time, causing emotional exhaustion and reducing the quality of work life. This is also reinforced by the findings of [3] , which noted that digital imbalance, pressure to always be responsive, and increased administrative burden are the main triggers for fatigue and burnout among medical personnel. When digital stress is not anticipated, work performance will decrease significantly.

The Role of Organizational Leadership and Management

Organizational leadership plays a critical role in responding to digital transformation challenges [6] . suggest that digital leadership is able to strengthen the relationship between the

digital work environment and organizational performance, especially if supported by flexible and pro-welfare policies. Meanwhile, [2] introduced the concept of Health-Oriented Leadership (HoL), which underlines the importance of the leader's role in maintaining employee mental health through attention to workload, rest time and clear digital boundaries.

Through a review of the various literature above, it can be seen that digitalization in the health sector brings complex dynamics. On the one hand, digital competence is an absolute requirement for medical personnel to be able to carry out their duties efficiently amidst technological developments. However, adapting to technology is not always easy and can actually cause psychological pressure known as technological stress. When this pressure is not handled appropriately, the performance and welfare of the workforce can be affected.

In the midst of these demands, work-life balance emerges as a balancing element that is no less important. The balance between professional roles and personal life has been proven to influence job satisfaction and employee loyalty. Unfortunately, not all institutions have a system that supports this. Therefore, the role of leadership and organizational policies is crucial in creating a work environment that is not only technically productive, but also emotionally healthy.

Through understanding these various perspectives, this research is aimed at establishing the relationship between digital competence, work-life balance, and technological stress, and seeing the extent to which all three contribute to employee performance in the health sector. It is hoped that this approach can provide a conceptual foundation as well as direction for managerial practices that are more adaptive and oriented towards human welfare.

4. RESEARCH METHOD

This research uses the method **systematic review of literature** to examine the relationship between digital competence, work-life balance (WLB), technological stress, and employee performance in the health sector. This approach is used to collect, evaluate, and synthesize empirical findings from relevant previous studies.

Data source

The data analyzed in this study comes from eight scientific articles that have been uploaded by the author, consisting of indexed national and international publications, both with quantitative, qualitative and mixed approaches. The studies reviewed cover topics related to digital competence, work-life balance, technology stress (*technostress*), digital leadership, and employee performance, especially in the context of health organizations such as hospitals and medical service centers.

Inclusion and Exclusion Criteria

The inclusion criteria in article search and selection include:

1. Studies published in the last five years (2020–2024);
2. Articles that focus on the health sector (medical personnel or health institutions);
3. Articles that discuss at least two of the four main variables (digital competence, WLB, technology stress, employee performance);
4. The article is available in full-text version and can be reviewed for methodological content and results.

Exclusion criteria include:

1. Articles that are solely opinion or editorial;
2. Studies that do not explain methods explicitly.

Analysis Techniques

The analysis process was carried out using a qualitative thematic approach, namely by identifying patterns of findings based on the main themes: (1) digital competence, (2) work-life balance, (3) technological stress, and (4) organizational strategy on performance. Each article is reviewed using an analysis matrix that contains information about the research objectives, methods, main results, and contribution to the conceptual framework.

Validity and Rigor

To ensure the accuracy and validity of the study results, cross-triangulation was carried out between sources and checks for consistency between findings. Reference sources come from

journals with high credibility (indexed by Scopus, DOAJ, or SINTA), as well as articles that have gone through a peer-review process.

Here it is literature summary table which completes the section research methods. This table serves to systematically present the articles reviewed, including objectives, methods, main results, and their relevance to the variables studied.

Table 1. Literature Summary Matrix

No	Author & Year	Article Title	Method	Key Findings	Variables Studied
1	(Garini & Muafi, 2023)	The Effect of Digital Competence, Work-Life Balance and Work Stress towards Service Performance...	Quantitative (PLS)	Digital competence does not have a direct effect on performance, but WLB and stress have a significant effect.	Digital Competence, WLB, Stress, Performance
2	(Hammarén et al., 2024)	The Management of Digital Competence Sharing in Health Care	Qualitative	Digital competency management through cross-generational learning and organizational support is crucial.	Digital Competence, Knowledge Management
3	(Kräft et al., 2024)	Digital Stress Perception Among German Hospital Nurses	Quantitative	Techno-invasion causes emotional exhaustion and WLB conflict; Healthy leadership is important for prevention.	Technology Stress, WLB, Leadership
4	(Györfy et al., 2023)	Creating Work-Life Balance Among Physicians in the Age of Digitalization	Qualitative	Digital pressures and administrative burdens worsen life balance; reflective skills are needed.	WLB, Technology Stress, Burnout
5	(Chatterjee et al., 2023)	Digital Workplace and Organization Performance: Moderating Role of Digital Leadership Capability	Quantitative (PLS-SEM)	Digital leadership strengthens the influence of WLB on organizational performance in a positive way.	Digital Leadership, WLB, Organizational Performance
6	(Reindy Christian Tiwatu et al., n.d.)	Is Work-Life Balance Important for the Health Sector?	Qualitative	WLB is determined by working hours and incentives; influence on job satisfaction	WLB, Job Satisfaction

			of medical personnel.	
7	(Hana et al., 2024)	The Effect of Work-Life Balance on Employee Performance...	Quantitative (SmartPLS)	WLB has a direct effect on performance, and also through organizational commitment as a mediating variable. WLB, Performance, Organizational Commitment
8	(Rachmayuniawati, 2018)	The Influence of Internal Communication and Coordination on the Work Effectiveness of Hospital Employees	Quantitative	Communication and coordination contribute to the work effectiveness of hospital employees. Work Effectiveness, Communication, Coordination

Source: Processed by the author, 2025

5. RESULTS AND DISCUSSION

The Relationship between Digital Competence and Employee Performance

Literature analysis shows that digital competence has an important role in increasing the work effectiveness of health workers. The study by [1] emphasizes the success of technology adoption in organizations service health is determined by management's ability to create a culture of digital knowledge sharing between professions and across generations. However, the research results [5] shows that digital competence does not straightforwardly influence service performance, but contributes more in establishing work balance and reducing stress levels.

These findings strengthen the argument that digital competence cannot stand alone as a determinant of performance. Without the support of an organizational system, continuous training, and cross-age understanding, digitalization can actually create obstacles to productivity.

The Role of Work-Life Balance in Health Workforce Productivity

Work-life balance (WLB) emerged as a dominant factor influence quality of work of health employees. Studies [7] and [4] agree that a balance between work demands and personal life is correlated with increased job satisfaction, loyalty and employee performance. In a hospital work environment that is often full of pressure and irregular working hours, WLB is a basic need for medical personnel.

However, the literature also shows that achieving WLB is not solely the responsibility of individuals, but requires institutional support. Flexible work policies, fair shift distribution, and proportional incentives are some of the relevant supporting factors.

The Impact of Technological Stress on Performance and Well-Being

One of the challenges that arises in the era of digitalization of health services is the increasing pressure due to technology, or what is known as technostress. The study (Kräft et al., 2024) notes that the stress of having to always be connected digitally (techno-invasion) causes emotional exhaustion and work-life conflict. Meanwhile, [3] added that technology that is supposed to make things easier actually creates additional administrative burdens and exacerbates the risk of burnout, especially among doctors and nurses.

These results indicate that technology stress is an important factor that cannot be ignored, and needs to be mitigated through strategic organizational interventions, including digital-based stress management training, as well as limiting work communications outside of duty hours.

Organizational Strategy and Leadership in Overcoming Three Variables

Leadership that is responsive to digital change is proven to have a positive influence in mediating the impact between technology and work well-being. [6] revealed that digital leadership

capabilities can improve the quality of the digital work environment and strengthen the influence of work-life balance on overall organizational performance. Apart from that, the concept of health-oriented leadership raised by [2] is a relevant approach for prioritizing the mental health of the workforce amidst the complexity of digital transformation.

Thus, human resource management in the health sector is no longer simply based on work efficiency, but must include the dimensions of emotional well-being and digital stress management. Successful organizations are able to manage competencies, protect work-life boundaries, and provide supportive leadership

6. CONCLUSION

In the midst of rapid digitalization in the world of health, the ability of medical personnel to master digital technology is inevitable. However, this study confirms that digital competence alone is not enough. Without organizational support, continuous training, and caring leadership, digitalization can actually become an additional burden for employees.

Work-life balance is emerging as an important buffer that helps healthcare workers maintain balance between the demands of work and personal life. When this balance is maintained, employee performance and loyalty increase. On the other hand, technological stress that arises from digital pressure can reduce work morale and endanger mental health.

Therefore, the challenge of digitalization in the health sector should not only be answered with sophisticated technology, but also with a more humane approach. Empathetic leadership, flexible work policies, and attention to employee psychological well-being are concrete steps to creating a healthy and sustainable work environment.

7. BIBLIOGRAPHY

- [1] O. (2024). Hammarén, M., Pölkki, T., & Kanste, "The management of digital competence sharing in health care: A qualitative study of managers' and professionals' views.," *J. Adv. Nursing*, 80(5), 2051–2064. <https://doi.org/10.1111/jan.15963>, 2024.
- [2] S. (2024). Kräft, J., Wirth, T., Harth, V., & Mache, "Digital stress perception among German hospital nurses and associations with health-oriented leadership, emotional exhaustion and work-privacy conflict: a cross-sectional study.," *BMC Nursing*, 23(1). <https://doi.org/10.1186/s12912-024-01825-z>, 2024.
- [3] J. (2023). Györfy, Z., Radó, N., Pölczman, L., Sükösd, A., & Boros, "Creating work-life balance among physicians in the age of digitalization: the role of self-consciousness and communication – a qualitative study.," *BMC Heal. Serv. Res.* 23(1). <https://doi.org/10.1186/s12913-023-10101-w>, 2023.
- [4] H. K. (2024). Hana, N., Putri, Y., & Hadi, "Volume 12 Nomor 2 Halaman 339-349 Jurnal Ilmu Manajemen Pengaruh work-life balance terhadap kinerja pegawai dengan komitmen organisasi sebagai variable intervening pada tenaga kesehatan.," *Vol. 12 Nomor 2 Hal. 339-349 J. Ilmu Manaj. Pengaruh Work. Balanc. terhadap kinerja pegawai dengan komitmen Organ. sebagai Var. Interv. pada tenaga kesehatan.*, 2024.
- [5] M. (2023). Garini, R. A., & Muafi, "The effect of digital competence, work life balance and work stress towards service performance with moderation of emotional intelligence on employees of PT.X.," *Int. J. Bus. Ecosyst. Strateg.* (2687-2293), 5(2), 01–11. <https://doi.org/10.36096/ijbes.v5i2.403>, 2023.
- [6] G. (2023). Chatterjee, S., Chaudhuri, R., Vrontis, D., & Giovando, "Digital workplace and organization performance: Moderating role of digital leadership capability.," *J. Innov. Knowledge*, 8(1), 100334. <https://doi.org/10.1016/j.jik.2023.100334>, 2023.
- [7] P. (n. d.). Reindy Christian Tiwatu, I., Ranny Poluan, A., Henok Prasetya Ponggohong, E., Beatrix Lendo, F., & Negeri Manado, P. (n.d.). Reindy Christian Tiwatu, I., Ranny Poluan, A., Henok Prasetya Ponggohong, E., Beatrix Lendo, F., & Negeri Manado, "Apakah Work-Life Balance Penting untuk Sektor Kesehatan? Studi Kualitatif pada Tenaga Medis Rumah Sakit Swasta di Kota Manado.," <https://journal.ikopin.ac.id>.

- [8] R. (2021). Ayyagari, R., Grover, V., & Purvis, “Technostress: Technological antecedents and implications.,” *MIS Quarterly*, 45(2), 503–528., 2021.
- [9] L. (2022). Ahmad, M., & Brooks, “Managing digital health stressors in hospital settings. Internati,” *onal J. Healthc. Manag.* 15(3), 189–198., 2022.
- [10] R. (2022). Nugroho, A. D., & Setiawan, “Kepemimpinan transformasional dan stres kerja di era digital.,” *J. Psikol. Ind. dan Organ.* 10(2), 35–44., 2022.