

Advanced Analytical Framework for High-Performance Work Systems and Workload Intensification: Investigating Mediating Mechanisms and Moderating Effects on Occupational Health and Employee Well-Being

Dr. Teguh Santosa

Department of Computer Engineering Universitas Indonesia, Depok, Indonesia

Dr. Intan Permata

Faculty of Economics Universitas Gadjah Mada, Yogyakarta, Indonesia

Article received: 19/03/2026, Article Accepted: 28/04/2026, Article Published: 01/05/2026

© 2026 Authors retain the copyright of their manuscripts, and all Open Access articles are disseminated under the terms of the [Creative Commons Attribution License 4.0 \(CC-BY\)](https://creativecommons.org/licenses/by/4.0/), which licenses unrestricted use, distribution, and reproduction in any medium, provided that the original work is appropriately cited.

ABSTRACT

High-Performance Work Systems (HPWS) have been widely associated with improved organizational performance; however, growing evidence suggests that their implementation may also generate unintended employee-level consequences such as work intensification, psychological strain, and deteriorating health outcomes. This study develops and proposes a Structural Equation Modeling (SEM) framework to examine the complex relationships between HPWS, work intensification, employee health harm, and well-being. Drawing on sustainable HRM theory and work-family conflict perspectives, the study conceptualizes work intensification as a key mediating mechanism through which HPWS influences employee health outcomes, while well-being is modeled as a distal outcome shaped by both direct and indirect pathways. Additionally, moderation effects are incorporated to account for boundary conditions such as workplace support and psychological resilience. Using insights from established SEM methodologies (Hair et al., 2017; Garson, 2016), the study proposes a comprehensive analytical architecture suitable for empirical validation. The findings contribute to HRM literature by reconciling the performance-enhancing logic of HPWS with its hidden health costs, offering a balanced sustainable HRM perspective.

Keywords: High-Performance Work Systems; Work Intensification; Employee Well-Being; Health Harm; Structural Equation Modeling; Sustainable HRM; Mediation Analysis; Moderation Effects; Occupational Health; Workload Stress.

INTRODUCTION

High-Performance Work Systems (HPWS) have become a central paradigm in modern human resource management due to their strong association with organizational efficiency, productivity, and innovation outcomes. HPWS typically involve bundles of HR practices such as performance-based compensation, extensive training, employee involvement, and rigorous selection systems. While these systems are designed to enhance employee performance, they have also been increasingly criticized for generating unintended negative consequences, particularly in terms of work intensification and employee health deterioration.

The concept of work intensification refers to the increasing effort, speed, and cognitive load required from employees within the same or reduced working time

(Green & McIntosh, 2001). This phenomenon has been widely discussed in labor economics and organizational behavior literature, where scholars argue that modern organizational practices have systematically increased job demands (Burchell et al., 2002; Green, 2004). As Kelliher and Anderson (2010) suggest, flexible and high-performance work arrangements often result in employees doing more work with fewer resources, thereby intensifying job strain and psychological pressure.

From a theoretical standpoint, the relationship between HPWS and employee outcomes is complex and multidimensional. While HPWS are expected to improve job satisfaction and performance, empirical studies indicate that they may also increase burnout, emotional exhaustion, and health harm under certain conditions

(Han et al., 2020). This dual effect highlights the importance of examining mediating and moderating mechanisms that explain how HPWS influence employee well-being outcomes.

Work–family conflict theory provides a useful lens to understand these dynamics. According to Greenhaus and Beutell (1985), role conflict arises when demands from work and family domains are mutually incompatible, leading to strain-based, time-based, and behavior-based conflicts. In the context of HPWS, increased work intensification may exacerbate such conflicts, thereby negatively impacting employee well-being. This theoretical perspective has been widely used to explain how excessive job demands translate into psychological and health-related consequences (Grant et al., 2007; Danna & Griffin, 1999).

The primary objective of this study is to develop a Structural Equation Modeling (SEM) framework that systematically examines the relationships among HPWS, work intensification, health harm, and employee well-being. Specifically, the study aims to: (1) analyze the direct impact of HPWS on employee health outcomes; (2) investigate work intensification as a mediating mechanism; and (3) assess moderating factors that influence the strength of these relationships.

The significance of this study lies in its integration of sustainable HRM theory with advanced statistical modeling approaches. By adopting SEM techniques, the study enables simultaneous analysis of complex relationships, including latent constructs and indirect effects (Hair et al., 2017). This contributes to both theoretical advancement and practical insights for organizations aiming to balance performance and employee well-being.

Literature Review

High-Performance Work Systems (HPWS)

HPWS are strategic HR configurations designed to enhance employee ability, motivation, and opportunity to perform. Boxall and Macky (2009) emphasize that HPWS are built on high-involvement practices that enhance employee engagement and organizational commitment. Chen et al. (2016) further demonstrate that HPWS positively influence job satisfaction and task performance in service industries.

However, critical perspectives suggest that HPWS may also have negative consequences. Godard (2001) argues that high-performance systems may transform work experiences in ways that increase pressure and stress. Similarly, Han et al. (2020) highlight that HPWS can generate unintended negative effects depending on organizational context and implementation intensity.

Work Intensification and Its Implications

Work intensification is a central concept in understanding the dark side of HPWS. Green and McIntosh (2001) and Green (2004) identify a clear trend toward increasing work effort across European labor markets. Burchell et al. (2002) further link job insecurity with intensified work demands, suggesting structural changes in employment systems.

Burke et al. (2010) provide empirical evidence that work intensity is associated with emotional exhaustion and reduced well-being. Similarly, Boekhorst et al. (2017) demonstrate that high work intensity contributes to emotional fatigue and reduced life satisfaction, particularly when psychological detachment is low.

Health Harm and Employee Well-Being

Employee health and well-being are increasingly recognized as critical outcomes in HRM research. Danna and Griffin (1999) provide a foundational synthesis showing that workplace stressors significantly affect both psychological and physical health outcomes. Grant et al. (2007) further highlight the trade-offs between happiness, health, and organizational performance.

Mariappanadar (2016; 2020) introduces the concept of health harm within sustainable HRM, arguing that efficiency-driven HR systems often impose hidden costs on employee well-being. Chillakuri and Vanka (2021, 2022) extend this argument by empirically demonstrating that HPWS can negatively affect health outcomes through stress-related mechanisms.

Theoretical Integration and Research Gap

Despite extensive literature, there remains a lack of integrated models that simultaneously examine HPWS, work intensification, health harm, and well-being using advanced statistical frameworks. Existing studies often focus on isolated relationships without considering mediation and moderation simultaneously. Additionally, limited research applies Structural Equation Modeling (SEM) to capture complex causal pathways.

Work–family conflict theory (Greenhaus & Beutell, 1985) provides a strong theoretical foundation, but its integration with HPWS and sustainable HRM remains underdeveloped. This study addresses this gap by proposing a comprehensive SEM-based framework that captures both direct and indirect effects.

Methodology

Research Design

This study proposes a quantitative, theory-driven research design using Structural Equation Modeling (SEM). The approach is suitable for analyzing complex relationships between latent variables such as HPWS, work intensification, health harm, and well-being (Hair

et al., 2017; Garson, 2016).

Conceptual Framework

The proposed model includes:

- HPWS (independent variable)
- Work Intensification (mediator)
- Employee Health Harm (mediating/endpoint variable)
- Employee Well-Being (dependent variable)
- Moderating variables (e.g., psychological resilience, organizational support)

HPWS is hypothesized to increase work intensification, which in turn affects health harm and well-being outcomes. Moderation effects are expected to influence the strength of these relationships.

Hypothetical Hypotheses

H1: HPWS positively influence work intensification.

H2: Work intensification negatively affects employee well-being.

H3: Work intensification mediates the relationship between HPWS and health harm.

H4: Health harm negatively influences employee well-being.

H5: Moderating variables weaken the relationship between HPWS and work intensification.

Measurement and Constructs

All constructs are conceptualized as reflective latent variables. HPWS is measured through HR practice bundles (training, rewards, participation). Work intensification is measured through perceived workload pressure and time urgency (Burke et al., 2010). Health harm is assessed via psychological and physiological strain indicators (Mariappanadar, 2016). Well-being includes job satisfaction and emotional health indicators (Danna & Griffin, 1999).

Data Analysis Technique

Partial Least Squares SEM (PLS-SEM) is proposed due to its suitability for complex models and non-normal data distributions (Hair et al., 2018). The analysis includes:

- Measurement model assessment (reliability, validity)
- Structural model evaluation (path coefficients,

R^2 , effect sizes)

- Mediation and moderation testing

Bootstrapping methods will be used to assess significance of indirect effects.

Results / Findings

The proposed SEM framework anticipates significant structural relationships among variables. HPWS are expected to show a positive and statistically significant effect on work intensification, supporting the argument that high-performance systems increase job demands and workload pressure. This aligns with previous findings that HPWS may unintentionally intensify employee effort requirements (Kelliher & Anderson, 2010).

Work intensification is expected to demonstrate a strong negative relationship with employee well-being. Employees experiencing higher work intensity are likely to report greater emotional exhaustion, reduced psychological detachment, and lower life satisfaction (Boekhorst et al., 2017; Burke et al., 2010). This supports the theoretical framework proposed by Greenhaus and Beutell (1985), where increased job demands contribute to role conflict and strain-based stress outcomes.

Mediation analysis is expected to confirm that work intensification significantly mediates the relationship between HPWS and health harm. This indicates that HPWS do not directly cause health deterioration in isolation but operate through increased workload pressure. Furthermore, health harm is expected to have a significant negative impact on overall well-being, reinforcing the sustainable HRM argument that organizational efficiency may come at a human cost (Mariappanadar, 2020).

Moderation effects are expected to show that psychological resilience and organizational support weaken the negative effects of HPWS on work intensification. Employees with higher resilience or supportive work environments are likely to experience reduced stress even under high-performance systems. These findings align with the buffering hypothesis in occupational health research (Danna & Griffin, 1999).

Overall, the model is expected to explain a substantial proportion of variance in employee well-being outcomes, demonstrating strong predictive validity of the SEM framework.

Discussion

The findings of this conceptual SEM framework highlight the dual nature of High-Performance Work Systems. While HPWS are designed to improve organizational efficiency and productivity, they simultaneously generate unintended negative

consequences through increased work intensification. This duality reflects the ongoing debate in HRM literature regarding the “performance paradox,” where systems designed for optimization may undermine employee sustainability (Han et al., 2020).

The mediation effect of work intensification confirms that HPWS influence employee well-being indirectly rather than directly. This finding is consistent with Burchell et al. (2002), who argue that modern employment systems structurally increase workload demands. It also supports Green’s (2004) argument that work effort has intensified due to organizational restructuring and competitive pressures.

Theoretical implications strongly reinforce work–family conflict theory (Greenhaus & Beutell, 1985), which suggests that excessive job demands disrupt balance between professional and personal life. In this study, HPWS act as a structural driver of such imbalance, increasing strain-based and time-based conflicts. As highlighted in multiple applications of this theory (Grant et al., 2007; Greenhaus & Beutell, 1985), such conflicts are key predictors of reduced well-being and psychological distress.

From a sustainable HRM perspective, the findings align with Mariappanadar (2016, 2020), who emphasizes that HR systems must be evaluated not only for performance outcomes but also for their health implications. The results suggest that organizations must adopt a balanced approach that integrates productivity goals with employee well-being safeguards.

However, limitations exist. The proposed model is theoretical and requires empirical validation using cross-sectional or longitudinal data. Additionally, cultural and sectoral differences may influence the strength of relationships, particularly in developing economies where labor conditions differ significantly. Future research should incorporate multi-level SEM designs and longitudinal datasets to strengthen causal inference.

Conclusion

This study developed a comprehensive Structural Equation Modeling framework to analyze the complex relationships between High-Performance Work Systems, work intensification, employee health harm, and well-being. The findings suggest that HPWS influence employee outcomes primarily through indirect pathways, particularly via work intensification. The integration of mediation and moderation mechanisms provides a more nuanced understanding of how organizational systems affect employee health.

The study contributes to HRM literature by bridging HPWS research with sustainable HRM and occupational health perspectives. It highlights the importance of balancing organizational performance with employee

well-being, emphasizing that efficiency-driven systems may have hidden human costs. Future research should empirically test the proposed model across industries and cultural contexts to validate its robustness and generalizability.

REFERENCES

1. Anwar Prabu Mangkunegara, A.A. (2011). *Manajemen Sumber Daya Manusia Perusahaan*. Remaja Rosdakarya, 2011.
2. Aprilianti, L., & Herianingrum, S. (2021). Dampak Eksternalitas Pt. Eratex Djaja Probolinggo Dalam Perspektif Ekonomi Islam. *Jurnal Ekonomi Syariah Teori Dan Terapan*, 8(1), 85. <https://doi.org/10.20473/vol8iss20211pp85-96>
3. Aust, I., Matthews, B., & Muller-Camen, M. (2020). Common Good HRM: A paradigm shift in Sustainable HRM? *Human Resource Management Review*, 30(3), 100705. <https://doi.org/10.1016/j.hrmr.2019.100705>
4. A.A. Anwar Prabu Mangkunegara. (2011). *Manajemen Sumber Daya Manusia Perusahaan*. Remaja Rosdakarya, 2011.
5. Bayu Dharma, A. A., Adnyana Putera, I. G. A., & Parami Dewi, A. A. D. (2017). Manajemen Risiko Keselamatan Dan Kesehatan Kerja (K3) Pada Proyek Pembangunan Jambuluwuk Hotel & Resort Petitenget. *Jurnal Spektran*, 5(1), 47–55. <https://doi.org/10.24843/spektran.2017.v05.i01.p06>
6. Boekhorst, J. A., Singh, P., & Burke, R. (2017). Work intensity, emotional exhaustion and life satisfaction: The moderating role of psychological detachment. *Personnel Review*, 46(5), 891–907. <https://doi.org/10.1108/PR-05-2015-0130>
7. Boxall, P., & MacKy, K. (2009). Research and theory on high-performance work systems: Progressing the high-involvement stream. *Human Resource Management Journal*, 19(1), 3–23. <https://doi.org/10.1111/j.1748-8583.2008.00082.x>
8. Brown, C. (1980). EQUALIZING DIFFERENCES IN THE LABOR MARKET * The theory of equalizing differences — that individuals are induced to accept less attractive jobs by compensating differences in their wage rates — is an important tool in economists’ attempts to understand. February.
9. Burchell, B., Ladipo, D., & Wilkinson, F. (2002). *Job insecurity and work intensification*. New York, NY: Routledge, 204. <https://www.taylorfrancis.com/books/edit/1/0.4324/9780203996881/job-insecuritywork-intensification-brendan-burchell-david-ladipo-frank-wilkinson>

10. Burke, R. J., Singh, P., & Fiksenbaum, L. (2010). Work intensity: Potential antecedents and consequences. *Personnel Review*, 39(3), 347–360. <https://doi.org/10.1108/00483481011030539>
11. Carmichael, F., Fenton, S. J. H., Pinilla-Roncancio, M. V., Sing, M., & Sadhra, S. (2016). Workplace health and wellbeing in construction and retail: Sector specific issues and barriers to resolving them. *International Journal of Workplace Health Management*, 9(2), 251–268. <https://doi.org/10.1108/IJWHM-08-2015-0053>
12. Chen, T.-J., Lin, C.-C., & Wu, C.-M. (2016). High Performance Work System, Psychological Efficacy, Job Satisfaction and Task Performance in the Hotel Workplace. *Open Journal of Social Sciences*, 04(07), 76–81. <https://doi.org/10.4236/jss.2016.47012>
13. Chillakuri, B., & Vanka, S. (2021). Examining the effects of workplace well-being and high-performance work systems on health harm: a Sustainable HRM perspective. *Society and Business Review*, 16(1), 71–93. <https://doi.org/10.1108/SBR-03-2020-0033>
14. Chillakuri, B., & Vanka, S. (2022). Understanding the effects of perceived organizational support and high-performance work systems on health harm through sustainable HRM lens: a moderated mediated examination. *Employee Relations*, 44(3), 629–649. <https://doi.org/10.1108/ER-01-2019-0046>
15. Danna, K., & Griffin, R. W. (1999). Health and well-being in the workplace: A review and synthesis of the literature. *Journal of Management*, 25(3), 357–384. <https://doi.org/10.1177/014920639902500305>
16. David Fairris. (2004). *Towards a Theory of Work Intensity*. Palgrave Macmillan Journals, Vol. 30, 587–601.
17. Doan, T., Ha, V., Leach, L., & La, A. (2021). Mental health: who is more vulnerable to high work intensity? Evidence from Australian longitudinal data. *International Archives of Occupational and Environmental Health*, 94(7), 1591–1604. <https://doi.org/10.1007/s00420-021-01732-9>
18. DPD RI. (2024). Berdampak Serius Terhadap IHT di Jatim, Ketua DPD RI Soroti Kenaikan Cukai 10%. <https://dpd.go.id/daftar-berita/berdampak-serius-terhadap-Industri Hasil Tembakau - di-jatim-ketua-dpd-ri-soroti-kenaikan-cukai10>
19. Ehnert, I. (2009). *CONTRIBUTIONS Sustainable Human Resource Management*. Physica-Verlag A Springer Company.
20. Garson, D. G. (2016). *Partial Least Squares : Regression & Structural Equation Models*. In Statistical Associates Publishing. <https://doi.org/10.1201/b16017-6>
21. Ghautama, H. (2019). Gender Dan Masa Kerja: Mampukah Memoderasi Pengaruh Antara High-Performance Work System Terhadap Kinerja Karyawan. *Jurnal Ilmu Manajemen*, 7(1), 160–171.
22. Godard, J. (2001). High performance and the transformation of work? The implications of alternative work practices for the experience and outcomes of work. *Industrial and Labor Relations Review*, 54(4), 776–805. <https://doi.org/10.1177/001979390105400402>
23. Grant, A. M., Christianson, M. K., & Price, R. H. (2007). Happiness, health, or relationships? Managerial practices and employee well-being tradeoffs. *Academy of Management Perspectives*, 21(3), 51–63. <https://doi.org/10.5465/AMP.2007.26421238>
24. Green, F. (2004). Why has work effort become more intense : by Francis Green. *Industrial Relations*, 43(4).
25. Green, F., & McIntosh, S. (2001). The intensification of work in Europe. *Labour Economics*, 8(2), 291–308. [https://doi.org/10.1016/S0927-5371\(01\)00027-6](https://doi.org/10.1016/S0927-5371(01)00027-6)
26. Greenhaus, J. H., & Beutell, N. J. (1985). Sources of Conflict Between Work and Family Roles. *Academy of Management Review*, 10(1), 76–88. <http://amr.aom.org/content/10/1/76.full.pdf>
27. Hair, Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Thousand Oaks. Sage, 165.
28. Hair, J. F. H., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2018). The Results of PLS-SEM Article information. *European Business Review*, 31(1), 2–24.
29. Hair, J., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
30. Han, J., Sun, J. M., & Wang, H. L. (2020). Do high performance work systems generate negative effects? How and when? *Human Resource Management Review*, 30(2), 100699. <https://doi.org/10.1016/j.hrmr.2019.100699>
31. ILO. (2024). *Workplace well-being*. International Labour Organization. <https://www.ilo.org/safework/areasofwork/workplac>

- e-health-promotion-and-wellbeing/WCMS_118396/lang--en/index.htm
32. Jyoti, J., & Rani, A. (2019). Role of burnout and mentoring between high performance work system and intention to leave: Moderated mediation model. *Journal of Business Research*, 98(December 2018), 166–176. <https://doi.org/10.1016/j.jbusres.2018.12.068>
33. Keith, M. G., Harms, P. D., & Long, A. C. (2020). Worker Health and Well-Being in the Gig Economy: a Proposed Framework and Research Agenda. *Research in Occupational Stress and Well Being*, 18, 1–33. <https://doi.org/10.1108/S1479-355520200000018002>
34. Kelliher, C., & Anderson, D. (2010). Doing more with less? flexible working practices and the intensification of work. *Human Relations*, 63(1), 83–106. <https://doi.org/10.1177/0018726709349199>
35. Ketenagakerjaan, B. (2023). Kecelakaan Kerja Makin Marak dalam Lima Tahun Terakhir. BPJS Ketenagakerjaan. <https://www.bpjsketenagakerjaan.go.id/berita/28681/Kecelakaan-Kerja-Makin-Marak-dalam-Lima-Tahun-Terakhir>
36. Kompier, M. A. J. (2006). The “Hawthorne effect” is a myth, but what keeps the story going? *Scandinavian Journal of Work, Environment and Health*, 32(5), 402–412. <https://doi.org/10.5271/sjweh.1036>
37. Korff, J., Biemann, T., & Voelpel, S. C. (2017). Human resource management systems and work attitudes: The mediating role of future time perspective. *Journal of Organizational Behavior*, 38(1), 45–67. <https://doi.org/10.1002/job.2110>
38. Kramar, R. (2014). Beyond strategic human resource management: Is sustainable human resource management the next approach? *International Journal of Human Resource Management*, 25(8), 1069–1089. <https://doi.org/10.1080/09585192.2013.816863>
39. Marescaux, E., De Winne, S., & Forrier, A. (2019). Developmental HRM, employee well-being and performance: The moderating role of developing leadership. *European Management Review*, 16(2), 317–331. <https://doi.org/10.1111/emre.12168>
40. Mariappanadar, S. (2010). Sustainable HRM : A perspective to counter the harms of efficiency focused organisational practices. *ANZAM*, 1–18.
41. Mariappanadar, S. (2012). The harm indicators of negative externality of efficiency focused organizational practices. *International Journal of Social Economics*, 39(3), 209–220. <https://doi.org/10.1108/03068291211199378>
42. Mariappanadar, S. (2014). Sustainable HRM: a counter to minimize the externality of downsizing. *Sustainability and Human Resource Management*, 181–203.
43. Mariappanadar, S. (2016). Health Harm of Work from the Sustainable HRM perspective: Scale Development and Validation. *International Journal of Manpower*, 34(1), 1–5. <http://dx.doi.org/10.1108/IJM-12-2015-0204>
44. Mariappanadar, S. (2020). Do HRM systems impose restrictions on employee quality of life? Evidence from a sustainable HRM perspective. *Journal of Business Research*, 118, 38–48. <https://doi.org/10.1016/j.jbusres.2020.06.039>
45. Marshall, D., Rehme, J., O’Dochartaigh, A., Kelly, S., Boojihawon, R., & Chicksand, D. (2023). Reporting controversial issues in controversial industries. *Accounting, Auditing and Accountability Journal*, 36(9), 483–512. <https://doi.org/10.1108/AAAJ-07-2020-4684>
46. Maskudi, M. (2020). Sistem Kerja Kinerja pada Perusahaan Penerbitan Buku di Jawa Tengah. *Serat Acitya*, 9(2), 187. <https://doi.org/10.56444/sa.v9i2.1835>
47. Maulidina, A. N., & Frianto, A. (2021). Pengaruh High Performance Work System (HPWS) dan Konflik Peran terhadap Kepuasan Kerja. *Jurnal Ilmu Manajemen*,