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COMPARING WORK ENGAGEMENT ACROSS GENERATIONS: A MULTI-GROUP SEM STUDY OF MEDICAL RECORD AND HEALTH INFORMATION OFFICERS IN INDONESIA

COMPARAÇÃO DO ENGAJAMENTO NO TRABALHO ENTRE GERAÇÕES: UM ESTUDO DE SEM MULTIGRUPO DE RESPONSÁVEIS POR REGISTRO MÉDICO E INFORMAÇÕES DE SAÚDE NA INDONÉSIA

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Indra Pahala*
***Universitas Negeri Jakarta
Jakarta, Indonesia
Orcid: https://orcid.org/0009-0003-8324-0041
indrapahala@unj.ac.id

Indah Muliasari*
***Universitas Negeri Jakarta
Jakarta, Indonesia
indah_msari@unj.ac.id

Syamsiyah Laela Tunnisa*
***Universitas Negeri Jakarta
Jakarta, Indonesia
syamsiahlaelatunnisa@gmail.com

Wahyu Wastuti*
***Universitas Negeri Jakarta
Jakarta, Indonesia
Orcid: https://orcid.org/0009-0009-8251-5561
wahyuwastuti@unj.ac.id

Ela Elliyana Abdulah**
****Universitas Indonesia Timur
Jakarta, Indonesia
Orcid: https://orcid.org/0000-0002-8673-0631
elaelliyana82@gmail.com

Rismawati***
*****Universitas Muhammadiyah Palopo
Jakarta, Indonesia
Orcid: https://orcid.org/0000-0001-8046-6764
risma11@umpalopo.ac.id

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Abstract
Work engagement is a crucial factor for sustaining healthcare performance, especially among medical record and health information officers (MRHIOs) who play a vital role in data accuracy and digital health transformation. This study examines the determinants of work

Resumo
O engajamento no trabalho é um fator crucial para a manutenção do desempenho na área da saúde, especialmente entre os responsáveis por registros médicos e informações de saúde (MRHIOs), que desempenham um papel vital na precisão dos dados e na transformação digital

engagement, focusing on transformational leadership, empowerment, work environment, and the mediating role of work trust, while exploring potential generational and demographic differences. Methods: A cross-sectional survey was conducted using secondary data from 334 MRHIOs in Jakarta, Indonesia. Data were analyzed using Structural Equation Modeling (SEM) with AMOS, followed by multi-group SEM to test invariance across demographic groups including age, gender, tenure, and hospital type. Results: The model demonstrated strong fit indices (CFI = 0.97, RMSEA = 0.049). Transformational leadership, empowerment, and work environment significantly influenced engagement both directly and indirectly through work trust. Transformational leadership emerged as the strongest predictor, while work trust played a critical mediating role. Variance explained was 40% for work trust and 36% for engagement. Generational and demographic variations suggested that engagement is not uniform across groups. Conclusion: Engagement among MRHIOs is shaped by organizational resources and trust, consistent with the JD-R model and Social Exchange Theory. Hospitals should strengthen leadership, empowerment, work environment, and trust while tailoring engagement strategies to demographic differences to enhance healthcare performance and patient safety.

Keywords: Empowerment. Engagement. Leadership. Trust. Work Environment.

da saúde. Este estudo examina os determinantes do engajamento no trabalho, com foco na liderança transformacional, no empoderamento, no ambiente de trabalho e no papel mediador da confiança no trabalho, explorando potenciais diferenças geracionais e demográficas. Métodos: Um estudo transversal foi conduzido utilizando dados secundários de 334 MRHIOs em Jacarta, Indonésia. Os dados foram analisados utilizando Modelagem de Equações Estruturais (MEE) com AMOS, seguido por MEE multigrupo para testar a invariância entre grupos demográficos, incluindo idade, gênero, tempo de serviço e tipo de hospital. Resultados: O modelo demonstrou fortes índices de ajuste (CFI = 0,97, RMSEA = 0,049). A liderança transformacional, o empoderamento e o ambiente de trabalho influenciaram significativamente o engajamento, tanto direta quanto indiretamente, por meio da confiança no trabalho. A liderança transformacional emergiu como o preditor mais forte, enquanto a confiança no trabalho desempenhou um papel mediador crítico. A variância explicada foi de 40% para a confiança no trabalho e 36% para o engajamento. Variações geracionais e demográficas sugeriram que o engajamento não é uniforme entre os grupos. Conclusão: O engajamento entre os MRHIOs é moldado pelos recursos organizacionais e pela confiança, consistente com o modelo JD-R e a Teoria da Troca Social. Os hospitais devem fortalecer a liderança, o empoderamento, o ambiente de trabalho e a confiança, adaptando as estratégias de engajamento às diferenças demográficas para aprimorar o desempenho da assistência à saúde e a segurança do paciente.

Palavras-chave: *Empoderament. Engajamento. Liderança. Confiança. Ambiente de Trabalho.*

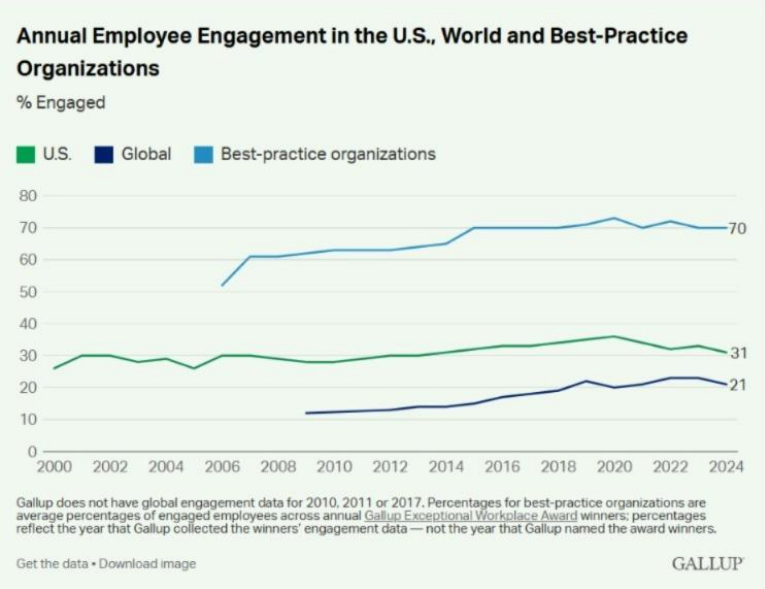
1 BACKGROUND

Work engagement has become one of the central issues in human resource management, particularly in the healthcare sector which is undergoing rapid digital transformation. Work engagement is defined as a positive motivational state characterized by vigor, dedication, and absorption in work (Schaufeli & Bakker, n.d.) (Schaufeli & Bakker, 2010). High levels of engagement have been shown to enhance individual and organizational performance, reduce turnover, and strengthen employee commitment to organizations (A. B. Bakker & Demerouti, 2017). However, several

studies reveal that engagement levels among healthcare professionals remain relatively low compared to other sectors. According to Gallup's State of the Global Workplace report, the percentage of workers classified as “engaged” globally will be around 21% in 2024, which is much lower than the ideal expectation in many organizations.

Figure 1.

Annual Employee Engagement in the U.S., World and Best-Practice Organizations



This highlights the serious challenge of maintaining motivation and engagement in the healthcare workforce, including medical record and health information officers (MRHIOs). Although specific data on healthcare workers is not readily available in Gallup's global report, these global figures provide a general picture that engagement in many sectors remains low.

In Indonesia, the urgency of improving work engagement among healthcare professionals has become more pressing due to government regulations such as the Ministry of Health Regulation No. 24/2022, which mandates the implementation of Electronic Medical Records (EMR) in all healthcare facilities and their integration with the SATUSEHAT national health information platform by the end of 2023. This policy requires MRHIOs to adapt to new technologies, upgrade digital competencies, and ensure the accuracy of health information they manage (*SATUSEHAT, Platform Layanan Kesehatan Digital Indonesia*, n.d.). Such transformations may lead to additional workload, stress, and digital fatigue, which could lower engagement if not managed

effectively (Mohamed *et al*., 2025; Okoye *et al*., 2023; Sanchez-Segura *et al*., 2023). Hence, understanding the factors that influence engagement among MRHIOs is vital in the context of healthcare digitalization.

A noteworthy phenomenon in engagement research is the variation across generations. Each age group Generation X, Millennials (Generation Y), and Generation Z possesses unique values, work expectations, and adaptation styles toward technology. (Gabrielova & Buchko, 2021; Mahmoud *et al*., 2021) found that younger generations tend to value flexibility, recognition, and career development, while older generations place greater emphasis on stability and job security. In healthcare, this is particularly relevant as the workforce is heterogeneous. Data from Statistics Indonesia (BPS Provinsi DKI, 2022), 2023) show that most healthcare workers are in the productive age range of 25 - 34 years, dominated by Generations Y and Z, while older workers, though fewer in number, often occupy strategic and experienced positions. These generational differences can influence engagement levels, adaptability to digital change, and perceptions of leadership and work environment.

Gender and tenure are also critical factors influencing engagement. Corduneanu *et al*., (2023); Scrimpshire *et al*., (2023) observed that women in public service sectors often display higher engagement levels due to intrinsic motivation and relational orientation. However, women are also more vulnerable to burnout due to dual work family responsibilities (Gupta & Srivastava, 2021). Meanwhile, employees with longer tenure often report more stable engagement because they are familiar with organizational culture, but may face stagnation if career development opportunities are limited (Bakker *et al*., 2014). Conversely, younger or less experienced employees may initially display enthusiasm but are vulnerable to uncertainty and turnover if support is lacking (Jena & Nayak, 2023; Jiang *et al*., 2018).

For MRHIOs, the complexity is even greater. As professionals responsible for managing health information, they face the dual challenge of maintaining accuracy while adapting to digital health reforms. Opoku & Boateng, (2024) emphasized that the work environment, including facilities and organizational support, strongly affects the performance and engagement of medical record staff. Furthermore, Meliana *et al*., (2025) demonstrated that work trust plays a crucial mediating role between transformational leadership, empowerment, and engagement, ultimately impacting medical record

accuracy. This indicates that MRHIO engagement is shaped not only by individual factors but also by organizational and psychosocial dynamics.

Despite extensive research on healthcare engagement, there remains a gap in examining demographic differences in engagement. Most studies analyze organizational predictors of engagement in general, without testing whether these relationships differ across demographic groups (A. B. Bakker & Albrecht, 2018). Multi-group analysis within the Structural Equation Modeling (SEM) framework allows researchers to test whether hypothesized relationships hold consistently across groups or differ significantly (Sobaih & Elshaer, 2022).

Therefore, this study focuses on comparing engagement among MRHIOs across demographic groups, specifically age, gender, tenure, and type of healthcare facility. The research model examines the influence of transformational leadership, empowerment, and work environment on engagement with work trust as a mediator, then applies multi-group SEM to test structural differences across groups. Theoretically, this study contributes to organizational behavior literature by exploring whether engagement dynamics vary across demographics. Practically, findings can inform hospital managers and policymakers to design targeted human resource strategies, such as leadership training tailored for younger versus older workers, or engagement interventions sensitive to gender and tenure differences.

As MRHIOs face increasing responsibilities in Indonesia's digital health transformation, understanding demographic variations in engagement is both relevant and urgent. Without tailored interventions, low engagement may undermine information management quality, accelerate turnover, and jeopardize the success of national policies such as SATUSEHAT. This study addresses these challenges by providing empirical evidence on cross-group engagement dynamics and supporting Indonesia's move toward a more effective and sustainable digital health system.

2 LITERATURE REVIEW

2.1 Work engagement in healthcare

Work engagement is conceptualized as a positive psychological state characterized by vigor, dedication, and absorption (A. Bakker *et al*., 2022). In healthcare,

engagement has been linked to improved service quality, patient safety, and reduced medical errors because engaged employees tend to be more attentive and motivated (A. B. Bakker & Albrecht, 2018).

For medical record and health information officers (MRHIOs), engagement is particularly critical because their responsibilities involve accuracy, confidentiality, and adaptation to new digital health systems. Low engagement may result in data entry errors, poor compliance, or resistance to adopting health information technology (Meliana *et al*., 2025b).

Evidence from other sectors also reinforces the strategic importance of engagement. For example, Sedyoningsih *et al*., (2024) found that work engagement positively influenced organizational commitment and employee loyalty in the Indonesian maritime tourism industry. Although conducted in a different context, their study highlights engagement as a key mechanism in building long-term employee organization relationships.

2.2 Theoretical foundations of engagement

a) Job Demands Resources (JD-R) Model

The JD-R model (Bakker & Demerouti, 2017) posits that engagement arises when job resources outweigh job demands. Resources such as leadership support, autonomy, and training buffer the negative effects of high workload, stress, or role ambiguity. In healthcare, where demands are high due to digital transformation and heavy administrative tasks, sufficient resources become essential to sustain engagement (A. B. Bakker & Demerouti, 2017). For MRHIOs, transformational leadership, empowerment, and a supportive work environment act as critical job resources.

b) Social Exchange Theory (SET)

SET explains engagement as the result of reciprocal exchanges between employees and organizations (Cropanzano & Mitchell, 2005). When employees perceive fairness, trust, and empowerment, they reciprocate with greater commitment and engagement. In this process, work trust serves as a psychological mechanism: MRHIOs who trust their leaders, colleagues, and digital systems are more likely to invest effort and attention in their roles (Meliana *et al*., 2025a).

c) Organizational Behavior Perspective

Organizational behavior research emphasizes that engagement is shaped not only by individual factors but also by organizational practices. Colquitt *et al*., (2019) argue that engagement results from the interaction of organizational mechanisms (e.g., leadership, empowerment, environment) and individual mechanisms (e.g., trust, motivation). This lens is particularly useful for understanding how national digital health policies influence MRHIO engagement in Indonesia.

2.3 Antecedents of work engagement

a) Transformational Leadership

Transformational leaders inspire employees by articulating a vision, stimulating innovation, and showing individualized consideration (Bass, 2006). In healthcare, such leadership styles foster adaptability and commitment during periods of change (Smolle, 2016). For MRHIOs, leaders who clearly communicate the importance of accuracy, empower staff, and provide ethical guidance are more likely to build trust and engagement.

b) Employee Empowerment

Empowerment provides employees with autonomy, resources, and decision-making authority. Research consistently shows that empowerment enhances intrinsic motivation and ownership, strengthening engagement (Rabie & Elliyana, 2019; Spreitzer, 1995). In medical record management, empowerment enables MRHIOs to take initiative in data quality improvement and technology adoption. Ding & Wang, (2023) found that empowered medical record staff reported higher engagement and accuracy in data recording.

c) Work Environment

The work environment both physical and psychosocial plays a major role in shaping engagement. Supportive environments with ergonomic design, teamwork, and adequate technological infrastructure promote sustained engagement Szilvassy & Širok, (2022). Conversely, poor facilities or excessive workloads create disengagement. In Indonesia, Dhandayuthapani & Shalini, (2024) showed that the physical conditions of medical filing rooms significantly influenced the performance of medical record staff. In the era of digital health, psychological safety and training have become equally critical.

d) Work Trust as Mediator

Trust mediates the link between organizational factors and engagement. In digital health, trust in systems and stakeholders is critical for adoption and performance (Lee & Whittaker, 2021), 2019). Cerchione *et al*., (2022) also showed that trust mediates decision-making in healthcare referrals. (Meliana *et al*., 2025b) confirmed that work trust mediates the effects of leadership, empowerment, and environment on engagement, which subsequently enhances medical record accuracy.

2.4 Demographic differences in engagement

Engagement is not uniform across employees but varies by demographic characteristics. Generational differences are especially notable: Twenge *et al*., (2010) reported that younger employees value flexibility and recognition, whereas older employees emphasize stability and loyalty.

Gender differences also exist. (Christian *et al*., 2011) found that women in service sectors often display higher engagement due to relational motivation, but women are simultaneously more prone to burnout from dual work family responsibilities (Alcorta-Garza *et al*., 2019).

Tenure further influences engagement: long-serving employees may show consistent commitment but risk stagnation if growth opportunities are lacking, while newer employees often display enthusiasm but higher turnover risk without proper support (Saks, 2006).

In Indonesia, Statistics Indonesia (www.bps.go.id, 2021) reported that most healthcare workers are under 35 years old, dominated by Millennials and Gen Z. Older MRHIOs, while fewer, still occupy strategic positions and bring institutional knowledge. Thus, multi-group Structural Equation Modeling (SEM) is valuable to test whether engagement determinants are invariant or differ significantly across age, gender, tenure, or facility type (Byrne, 2016).

2.5 Research gap and relevance

The literature demonstrates that leadership, empowerment, environment, and trust are vital for engagement. However, most studies examine healthcare workers as a

homogenous group, neglecting demographic heterogeneity. Very few studies test whether engagement models differ across generations or demographic subgroups.

3 METHODOLOGY

This study employed a quantitative, cross-sectional design using secondary data derived from a doctoral dissertation on medical record and health information officers (MRHIOs) in Jakarta, Indonesia. A total of 334 respondents were included through proportionate stratified random sampling across public and private hospitals. Data were collected via a structured questionnaire measuring transformational leadership, empowerment, work environment, work trust, and work engagement, using validated Likert-scale instruments adapted from prior studies (Schaufeli & Bakker, 2010; Spreitzer, 1995). Data analysis was performed with Structural Equation Modeling (SEM) using AMOS version 26. First, confirmatory factor analysis (CFA) was conducted to test construct validity and reliability. Model fit was assessed through standard indices including CFI, TLI, RMSEA, and χ^2/df. After establishing an acceptable baseline model, multi-group SEM was applied to examine structural invariance across demographic subgroups, namely age (younger vs. older), gender (male vs. female), tenure (≤5 years vs. >5 years), and hospital type (public vs. private). Measurement invariance tests were performed sequentially (configural, metric, scalar) before testing structural path differences (Byrne, 2016).

4 RESULT

4.1 Descriptive analysis

Descriptive statistics showed that respondents evaluated all variables at a high level. The highest mean score was obtained by Work Trust (M = 4.23), followed by Work Engagement (M = 4.18), Transformational Leadership (M = 4.15), Employee Empowerment (M = 4.12), and Work Environment (M = 4.08). This indicates that MRHIOs perceive their organizational environment positively, with trust emerging as the most salient characteristic of their professional role.

4.2 Measurement model (CFA)

Confirmatory Factor Analysis confirmed that all constructs achieved convergent validity. Standardized loadings exceeded 0.70 for most indicators, with Transformational Leadership dimensions ranging between 0.827–0.864, Employee Empowerment between 0.694–0.834, Work Environment between 0.745–0.847, Work Trust dimensions ranging 0.76–0.89, and Work Engagement between 0.729–0.859.

Reliability was excellent across variables, with Cronbach's Alpha ranging from 0.897 (Transformational Leadership) to 0.989 (Work Trust).

Table 1.

Reliability Statistics

Variable	Items	Cronbach's Alpha	Interpretation
Transformational Leadership	15	0.897	Reliable
Employee Empowerment	20	0.912	Reliable
Work Environment	20	0.982	Highly reliable
Work Trust	18	0.989	Highly reliable
Work Engagement	15	0.979	Highly reliable

4.3 Structural model (SEM Fit Indices)

The structural model demonstrated excellent fit indices. Although the chi-square test was significant due to sample size ($p = 0.00067$), other indices supported good fit: GFI = 0.92, RMSEA = 0.049, RMR = 0.038, CFI = 0.97, IFI = 0.97, RFI = 0.96, AGFI = 0.90.

Table 2.

Goodness of Fit Indices (Full SEM)

Fit Index	Cut-off Value	Result	Interpretation
GFI	≥ 0.90	0.92	Good fit
RMSEA	≤ 0.08	0.049	Good fit
RMR	≤ 0.05	0.038	Good fit
CFI	≥ 0.90	0.97	Excellent fit
IFI	≥ 0.90	0.97	Excellent fit
RFI	≥ 0.95	0.96	Excellent fit
AGFI	≥ 0.90	0.90	Acceptable

4.4 Hypothesis testing (direct effects)

Structural path analysis revealed that all hypothesized relationships were statistically significant.

Table 3.

Structural Path Coefficients

Path	Std. Estimate	t-value	Sig.
Transformational Leadership → Work Trust	0.32	5.00	***
Employee Empowerment → Work Trust	0.25	4.31	***
Work Environment → Work Trust	0.23	3.83	***
Transformational Leadership → Engagement	0.24	4.07	***
Employee Empowerment → Engagement	0.17	3.04	**
Work Environment → Engagement	0.19	3.33	**
Work Trust → Engagement	0.28	4.44	***

(***p < 0.001; **p < 0.01)

The model explained 40% of variance in Work Trust ($R^2 = 0.40$) and 36% of variance in Work Engagement ($R^2 = 0.36$).

5 DISCUSSION

The present study aimed to investigate the structural relationships among transformational leadership, employee empowerment, work environment, work trust, and work engagement among medical record and health information officers (MRHIOs) in Indonesia. Using SEM, the findings confirmed that transformational leadership, empowerment, and work environment significantly influence engagement, both directly and indirectly, through work trust. This discussion interprets these findings in light of existing theory and recent empirical evidence.

5.1 Transformational leadership and work trust

Transformational leadership was found to be the strongest predictor of work trust and engagement. Leaders who communicate a clear vision, inspire staff, and provide individualized consideration cultivate trust, which in turn enhances employees' willingness to commit effort to their roles. This result resonates with prior research that consistently highlights transformational leadership as a driver of work engagement across diverse industries. For instance, (Duțu & Butucescu, 2019) showed that transformational leadership significantly predicted engagement through psychological empowerment, while Gajenderan *et al*., (2023)demonstrated moderating effects of gender and work experience in the leadership engagement relationship.

In healthcare contexts, leadership is especially critical given the high stakes of patient safety and data integrity. Meliana *et al*., (2025b)confirmed that transformational leadership, combined with trust, improves both engagement and medical record accuracy, highlighting its dual role in psychological and performance outcomes.

5.2 Empowerment and engagement

Employee empowerment also significantly influenced engagement, albeit with smaller effect sizes compared to leadership. Empowerment allows MRHIOs to exercise autonomy in decision-making, access resources, and feel ownership over their tasks. This aligns with global evidence that empowerment is a mediating mechanism linking leadership to engagement (Monje-Amor *et al*., 2020)).

Studies in Indonesia also support this dynamic. Muslimah *et al*., (2023) found that empowerment mediated the relationship between transformational leadership and engagement in the private sector. In healthcare, empowering employees contributes not only to engagement but also to job satisfaction, retention, and innovation (Hofler & Thomas, 2016).

5.3 Work environment as a predictor

The work environment also showed a positive effect on engagement. This finding underscores the role of organizational climate and physical conditions in healthcare

facilities. A supportive environment characterized by adequate infrastructure, manageable workload, and psychological safety strengthens engagement. Conversely, poor environments exacerbate stress and disengagement.

Kuokkanen *et al*., (2003) similarly found that environments with authoritarian leadership and poor access to information impeded empowerment, while supportive contexts facilitated engagement. More recent evidence indicates that organizational strategic intelligence and professional accountability also shape engagement in healthcare settings (Farghaly Ali Mohamed *et al*., 2019).

5.4 Work trust as mediator

One of the key contributions of this study is the confirmation of work trust as a mediating variable. Trust was found to bridge the relationship between organizational practices (leadership, empowerment, environment) and engagement. This result is consistent with previous findings where trust in leaders and systems fostered engagement and commitment in healthcare (Ahmed *et al*., 2024).

Moreover, demonstrated that work trust directly improves accuracy in medical records, suggesting that engagement mediated by trust has tangible impacts on healthcare quality. This highlights the practical importance of cultivating trust not only as a psychological construct but as a strategic factor for performance outcomes.

5.5 Demographic differences and multi-group implications

Although the main analysis confirmed the hypothesized relationships at the aggregate level, the study further suggests the potential for demographic moderation. Prior research indicates that generational cohorts may value different job resources, thereby experiencing engagement differently. Twenge *et al*. (2010) showed that younger employees prioritize recognition and flexibility, while older employees emphasize stability. More recent research confirms that gender and work experience moderate leadership engagement links (Nawaz & Gajenderan, 2023).

For MRHIOs, this means that interventions to enhance engagement should be tailored: younger staff may require developmental opportunities and recognition, while older staff may value security and continuity. Similarly, gender-sensitive policies that

address work-life balance may mitigate disengagement among women, who often face dual work–family burdens (Maslach & Leiter, 2016).

5.6 Practical implications

The findings carry several implications for healthcare management. First, leadership training should emphasize transformational behaviors to cultivate trust and engagement among MRHIOs. Second, empowerment systems such as participatory decision-making and access to resources should be institutionalized. Third, organizational climate must be continuously improved through supportive environments, fair policies, and attention to work conditions. Finally, engagement strategies must be adapted to demographic variations, ensuring inclusivity across age, gender, and tenure.

These strategies align with evidence that healthcare organizations with engaged staff deliver higher-quality care and better patient safety outcomes (Abdul & Boitor, 2018; Cummings *et al*., 2018)

this study reinforces the centrality of transformational leadership, empowerment, and supportive environments in fostering engagement through trust. The results are consistent with global and local evidence, while adding nuance by highlighting demographic considerations. For Indonesia's healthcare system, where digital transformation of medical records is underway, strengthening engagement among MRHIOs is not only a matter of human resource management but also a prerequisite for data quality and patient safety.

6 CONCLUSION AND RECCOMENDATION

6.1 Conclusion

This study examined the structural relationships among transformational leadership, empowerment, work environment, work trust, and work engagement among medical record and health information officers (MRHIOs) in Indonesia. The results demonstrated that all organizational factors significantly contributed to engagement, both directly and indirectly, with transformational leadership identified as the most influential predictor. Work trust was confirmed as a key mediator, highlighting its critical role in

translating organizational practices into higher engagement levels. These findings align with the Job Demands–Resources model and Social Exchange Theory, emphasizing that organizational resources and reciprocal trust foster sustainable engagement.

The study also acknowledged potential demographic differences, suggesting that engagement is not uniform across age, gender, or tenure. This reinforces the importance of adopting more targeted approaches when designing organizational strategies to maintain engagement in healthcare settings.

6.2 Recommendations

a) Leadership Development: Hospitals should invest in leadership training programs that cultivate transformational behaviors such as vision building, empowerment, and individualized support.

b) Strengthening Empowerment: Empowerment mechanisms should be institutionalized by providing autonomy, professional development, and participatory decision-making opportunities for MRHIOs.

c) Improving Work Environment: Healthcare institutions must prioritize supportive work climates, ergonomic facilities, and psychological safety to enhance engagement and reduce stress.

d) Building Trust Systems: Transparent communication, fair policies, and reliable digital systems should be developed to foster work trust as the foundation for engagement.

e) Tailored Strategies: Engagement initiatives should consider demographic diversity, offering flexibility and recognition for younger employees while ensuring stability and career continuity for senior staff.

By implementing these strategies, healthcare organizations can strengthen engagement, improve medical record accuracy, and ultimately enhance patient care quality in the digital transformation era.

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Authors' Contribution

Both authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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