

The Mediating Role of Leadership and Perception of Artificial Intelligence Use in the Influence of Happiness on Innovative Work Behavior

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Abstract - Innovative work behavior (IWB) of medical personnel is an important factor in improving the quality of hospital healthcare services, as it can encourage work effectiveness and service quality. This study aims to examine the effect of happiness on IWB with the mediating role of transformational leadership (TL) and the use of AI in medical personnel. The study population consisted of all medical personnel at Purwokerto Islamic Hospital, and a purposive sampling technique was used to obtain 184 respondents as a sample. This study used SEM-PLS analysis on the SmartPLS 4.0 application with Social Exchange Theory as the basis for the approach to the relationship between variables. The results showed that happiness had a positive and significant effect on IWB, both directly and through the perception of AI use as a mediating variable. However, TL was not proven to mediate the effect of happiness on IWB. This study emphasizes the importance of hospitals creating a work environment that supports the psychological well-being of medical personnel and optimizing positive perceptions of the use of AI through appropriate training and governance to support innovation effectively.

Keywords: happiness, transformational leadership, innovative work behavior, perception of AI usage.

I. INTRODUCTION

A company's progress and success are determined by the quality of its human resources, especially in this era of progress (Jony et al., 2024). Technological advancements have led to the rapid development of information, including in the healthcare sector. Hospitals and other healthcare facilities must adapt to changes in technology, services, and the increasingly diverse needs of patients (Hanna et al., 2024).

A hospital is a service business that provides intangible products in the form of services and involves human resources to operate it (Ferry et al., 2021). The primary function of a hospital is to serve the public in need of healthcare, primarily as a place for medical services, prevention, and health education (Rahmadiani et al., 2020). The healthcare facilities needed by the community require hospitals to be ready and agile in adapting to changes in the number and types of patients (Ekawati & Andriani, 2022). Therefore, improving hospital operational activities and services requires human resources with the skills, energy, and fresh, innovative ideas (Setianto et al., 2022).

Based on the results of interviews with the HR department of Purwokerto Islamic Hospital, it was revealed that training or workshops discuss explicitly how the happiness of medical personnel is viewed as a critical factor in performance, as well as how work innovation can be fostered through the use of technology, particularly artificial intelligence (AI). This lack of attention to psychological aspects and strengthening technological literacy indicates a gap in efforts to develop the capacity of medical personnel to face the challenges of modern healthcare. Therefore, this research is important because it can provide a basis for hospitals in formulating more appropriate human resource development strategies.

Innovative behavior of medical personnel in the workplace is recognized as a key development strategy for organizational competitiveness (Elkholy et al., 2024). This innovative behavior, known as Innovative Work Behaviour (IWB), refers to employee actions in generating new ideas, creative concepts, and implementing innovative solutions to solve workplace problems (Setyowati & Etikariena, 2019). IWB involves an individual's ability to contribute to increasing efficiency, productivity, and company progress by introducing or developing new ideas, processes, products, or innovative services (Yusufa et al., 2023). Several factors influence IWB,

namely happiness (Hasanati et al., 2025), transformational leadership (Grošelj et al., 2020), and the use of AI (Alagele et al., 2025).

One factor influencing IWB is happiness (Al-Shami et al., 2023). Torres et al. (2025) characterize happiness as a comprehensive favorable self-assessment of an individual's existence. Workplace happiness enhances individual well-being and favorably influences corporate efficiency, imaginative thinking, and innovation (Butt et al., 2020). Positive emotions from happiness can stimulate creative thinking, foster confidence in conveying ideas, and increase the likelihood of innovation in daily work (Fadila et al., 2025).

Previous research by Agaoglu et al. (2025), Fadila et al. (2025), dan Hasanati et al. (2025) found that happiness has a positive and significant effect on IWB. Happiness can stimulate individuals to think more openly and divergently, which is the primary foundation for fostering innovation (Fadila et al., 2025). However, research conducted by Al-Shami et al. (2023) found that happiness does not affect IWB.

According to Agaoglu et al. (2025) the influence of happiness on IWB is not entirely direct. However, it can be mediated by transformational leadership (TL) that can direct employees' positive emotions into innovative actions in the workplace. Individuals exhibiting elevated subjective well-being generally demonstrate enhanced self-leadership abilities, which subsequently manifest in more effective leadership practices (Torres et al., 2025). Transformational leaders foster an atmosphere of flexibility by encouraging followers and providing innovative ideas, thereby encouraging employees to seek creative perspectives in their work (Karimi et al., 2023).

Several previous studies, including those by Agaoglu et al. (2025), Canal Carrillo et al. (2023), Conesa et al. (2024), dan Torres et al. (2025), found that happiness has a positively and significantly influence on TL. Research by Agaoglu et al. (2025), Grošelj et al. (2020), Karimi et al. (2023), Lin (2023), dan Messmann et al. (2022) shows that TL has a positively and significantly influence on IWB. In addition, research conducted by Agaoglu dkk., (2025) states that TL can mediate the influence of happiness on IWB. However, research conducted by Suhartono et al. (2023) states that happiness does not affect TL, and Az Zahra & Etikariena (2024) state that TL does not affect IWB.

The next factor that can mediate the influence of happiness on IWB is the perception of the use of AI (Agaoglu et al., 2025). AI is a branch of computer science that focuses on developing software systems that can mimic or copy human thinking and decision-making abilities (Arnadi et al., 2024). AI systems are engineered to execute tasks that generally necessitate human intelligence, including sound and image recognition, decision-making, and problem-solving (Ramachandran & Kannan, 2021).

The rapid advancement of technology in healthcare necessitates an evaluation of the potential application of AI in medical service practices (Elkholy et al., 2024). Research by Agaoglu et al. (2025), Alagele et al. (2025), Atalla et al. (2024), Elkholy et al. (2024), dan Verma & Singh (2022) shows that perceptions of AI use have a positively and significantly effect on IWB. In addition, research conducted by Agaoglu et al. (2025) states that happiness has a positively and significantly effect on IWB, and perceptions of AI use can mediate the effect of happiness on IWB. However, research conducted by Odugbesan et al. (2023) obtained different results, namely that perceptions of AI use do not mediate the effect of happiness on IWB.

This study replicates Agaoglu et al. (2025) work, which examined the mediating role of TL and perceived AI use in the relationship between happiness and IWB. Studies on how TL and perceived AI use mediate the influence of happiness on IWB are still relatively rare (Agaoglu et al., 2025), thus maintaining academic urgency. The novelty of this study lies in the demographic differences of the subjects, namely medical personnel at the Purwokerto Islamic Hospital in Indonesia, who have different organizational contexts, cultures, and work dynamics compared to those in previous studies.

Karimi et al. (2023) stated that research on how IWB can be encouraged in developing countries is still limited, particularly empirical evidence related to innovation in public sector organizations. Therefore, this study is expected to enrich the literature, confirm previous findings, and provide practical contributions regarding how the mediating role of TL and AI can support the improvement of IWB in the context of hospitals in Indonesia.

Social Exchange Theory

Based on Social Exchange Theory (SET), the relationship between employees, leaders, and organizations is built on the principle of reciprocity, which involves social exchange, trust, and a sense of community. This theory explains that when employees form relationships, those who are psychologically engaged with their organization are more active in their professional and organizational roles and will reciprocate support with practical and effective behavior (Liaquat & Mehmood, 2017; Rimatanti & Darmawan, 2023). In the context of this research, happiness is positioned as an independent variable that can create a positive psychological relationship between employees and their environment, thereby encouraging more active engagement and ultimately supporting the emergence of innovative work behavior (IWB).

Transformational leadership (TL) plays a crucial role by engaging followers in a social exchange process based on strong interpersonal trust and togetherness (Lin, 2023). It also fosters an ideal work environment for both parties through positive relationships between leaders and employees (Novitasari et al., 2025). Furthermore, perceived AI use can be understood as a form of organizational support that helps improve work efficiency and facilitate innovation, thereby strengthening employee commitment to contribute more. Thus, through the SET framework, this study emphasizes that happiness, as a psychological capital of medical personnel, can influence IWB, both directly and through the mediation of TL and perceived AI use.

Innovative Work Behavior

Innovation can be understood, on the one hand, as a tangible product or outcome, such as a new device, method, or idea, and as an approach for developing something novel (Grošelj et al., 2020). Meanwhile, innovative work behavior (IWB) refers to employee actions in generating new ideas, such as introducing or developing processes, products, or services (Yusuf dkk., 2023). IWB is the individual action that leads to the implementation of new ideas and processes, becoming a means to enhance work performance at both the individual and group levels (Novitasari et al., 2025). IWB in this study was measured using three dimensions developed by Phanniphong & Na-Nan (2025), which include idea generation, idea promotion, and idea realization.

Happiness towards Transformational Leadership

The conceptualization of happiness as an independent variable and its impact on leadership practices represents a novel contribution that builds upon existing research. This approach enhances the theoretical framework by providing a complementary and bidirectional relationship between leadership and well-being (Torres et al., 2025). Happiness in this study was measured using Shorted Happiness at Work (SHAW) from Feitor et al. (2023), which includes three dimensions: engagement, job satisfaction, and affective organizational commitment.

Research conducted by Agaoglu et al. (2025), Carrillo et al. (2023), Conesa et al. (2024), and Torres et al. (2025) showed that happiness has a positively and significantly effect on TL. High levels of subjective well-being in individuals correlate with enhanced self-leadership capacity, subsequently leading to improved leadership practices (Torres et al., 2025).

H1: Happiness has a positive and significant effect on transformational leadership

Happiness towards Perception of AI Use

Workplace happiness reflects the positive emotional state employees experience when carrying out tasks and interacting within the organization (Fadila et al., 2025). A happy workforce tends to be optimistic, more open to change, and ready to embrace innovation, including the use of new technologies such as artificial intelligence (AI). With a stable and positive emotional state, employees view AI not only as a tool but also as an opportunity to improve work effectiveness and service quality. Perceptions of AI use can be measured using the AI Attitude Scale (AIAS), which includes perceptions of benefits of use, potential social impacts, adoption intentions, risk perceptions, and evaluation of the impact of AI on humanity (Grassini, 2023).

Research conducted by Agaoglu et al. (2025) showed that happiness has a positively and significantly effect on perceptions of AI use. The study explained that happiness, an aspect of nurses' well-being, is positively related to perceptions of AI use.

H2: Happiness has a positive and significant effect on the perception of AI usage

Transformational Leadership towards Innovative Work Behavior

Transformational leadership (TL) style is seen as an important determinant of IWB, as this leadership style provides an effective framework for motivating employees to enhance their skills (Agaoglu et al., 2025). Transformational leaders foster a flexible organizational environment by motivating followers and encouraging innovative ideas across the organization. They prompt employees to examine their emotions and motivate them to explore alternative viewpoints in their work (Karimi et al., 2023).

Research conducted by Agaoglu et al. (2025), Grošelj et al. (2020), Karimi et al. (2023), Lin (2023), and Messmann et al. (2022) showed that TL has a positively and significantly effect on IWB. Transformational leaders who prioritize employee well-being, address problems, and acknowledge desires can enhance employees' capacity to engage in IWB (Karimi et al., 2023).

H3: Transformational leadership has a positive and significant effect on innovative work behavior

Perception of AI Use towards Innovative Work Behavior

Artificial intelligence (AI) functions as an intermediary variable, highlighting its significance in adapting to global advancements in knowledge and technology utilization. It is considered to have a significant role in IWB (Alagele et al., 2025). Technologies such as AI can tackle specific challenges, including insufficient expertise and limited experience, streamline documentation processes, and offer access to current scientifically supported procedures to enhance the quality of care delivered to patients, thus alleviating the frustrations faced by practitioners due to organizational burdens (Elkholy et al., 2024).

Research conducted by Agaoglu et al. (2025), Alagele et al. (2025), Atalla et al. (2024), Elkholy et al. (2024), and Verma & Singh (2022) showed that perceptions of AI use have a positively and significantly impact on IWB. The application of AI in work can help find innovative ways, the implementation of optimal new ideas, and the effective development of plans and schedules for their execution (Atalla et al., 2024).

H4: Perception of AI usage has a positive and significant effect on innovative work behavior

Happiness towards Innovative Work Behavior

Happiness can enhance creativity through higher cognitive thinking, strong motivation, and openness to new ideas (Hasanati et al., 2025). Happiness and hope are two positive emotions that encourage individuals to examine and absorb new information, while also enhancing creative thinking and innovative power (Al-Shami et al., 2023). Positive emotions also stimulate creative thinking processes, foster confidence in conveying ideas, and increase the likelihood of innovation in daily work (Fadila et al., 2025).

Research conducted by Agaoglu et al. (2025), Al-Shami et al. (2023), Fadila et al. (2025), and Hasanati et al. (2025) showed that happiness has a positively and significantly effect on IWB. Happiness can stimulate individuals to think more openly and divergently, which is the primary foundation for creating the innovation process (Fadila et al., 2025).

H5: Happiness has a positive and significant effect on innovative work behavior

The Mediating Role of Transformational Leadership in the Influence of Happiness on Innovative Work Behavior

Transformational leadership (TL) is characterized by the development of a dynamic vision and ambitious objectives, while also inspiring and motivating followers (Lin, 2023). Transformational leaders reinforce employees' sense of efficacy through individual encouragement, stimulated thinking, and encouragement for inventive ideas, ultimately increasing IWB (Agaoglu et al., 2025). The Bass Multifactor Leadership Questionnaire (MLQ), developed by Den Hartog et al. (1997) consists of four dimensions such as charisma, inspiration, individual consideration, and intellectual stimulation, which are used to assess TL.

Previous research by Agaoglu et al., (2025) showed that TL can mediate the influence of happiness on IWB. The benefits of TL are greater in stimulating followers' IWB when levels of inner empowerment are higher (Grošelj et al., 2020). Consequently, employees who receive personal attention and support from transformational leaders are more likely to exert greater effort in establishing, cultivating, and carrying forth daily ideas aimed at enhancing closeness levels (Lin, 2023).

H6: Transformational leadership can mediate the influence of happiness on innovative work behavior

The Mediating Role of Perception of Artificial Intelligence Usage in the Influence of Happiness on Innovative Work Behavior

Artificial intelligence (AI) is a branch of computer science that focuses on developing systems and software that can mimic or copy human thinking and decision-making abilities (Arnadi dkk., 2024). AI can be a trigger for encouraging creativity and innovation in the workplace and stimulating employees' innovative thinking processes (Agaoglu et al., 2025).

Previous research by Agaoglu et al. (2025) shows that leadership Transformational motivation can mediate the influence of happiness on IWB. The study revealed that employees who perceive AI use positively, such as feeling it is helpful, more efficient, or that it makes their tasks easier, will be more confident and motivated to try new things and innovate.

H7: Perception of AI Usage can mediate the influence of happiness on innovative work behavior

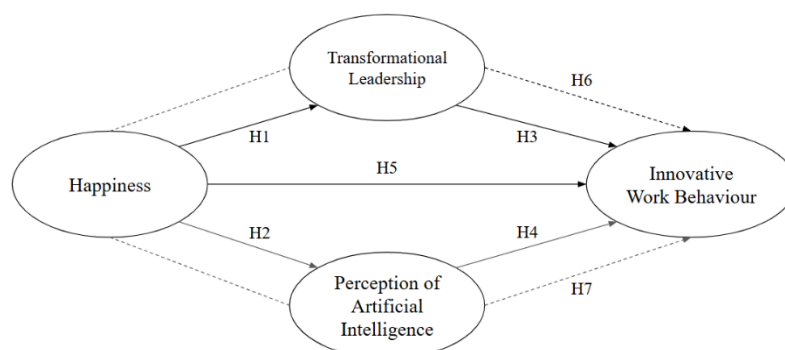


Figure 1. Research Model

II. METHOD

This research is quantitative. The population in this study was 303 employees of Purwokerto Islamic Hospital. A sample of 184 respondents was obtained using the purposive sampling technique, with a margin of error of 10% according to Slovin. Purposive sampling is a technique for selecting data sources based on several considerations (Sugiyono, 2019). Researchers considered only medical personnel as samples in this study.

Data analysis in this study involved statistical and descriptive analysis using PLS-SEM. Descriptive analysis was used to describe participant responses and identify respondent patterns. To test the Structural Equation Modeling (SEM) system, the SmartPLS testing program was used. SEM analysis was chosen because of its ability to provide a direct representation of variable relationships and conduct path analysis (Hair et al., 2017). The process requires two stages: the first stage evaluates the model using the Outer Model assessment, the second stage involves evaluating the structural model (Inner Model) to test hypotheses and explain variable relationships. Convergent validity was confirmed with loading values exceeding 0.7 and AVE values above 0.5 (Hair et al., 2017). Discriminant validity was assessed using cross-loading and Fornell-Larcker values, and indicator reliability was validated with Cronbach's alpha and Composite Reliability values exceeding 0.70 (Hair et al., 2017).

In this study, happiness was measured using Shorted Happiness at Work (SHAW) from Feitor et al. (2023), which includes three dimensions, namely engagement, job satisfaction, and affective organizational commitment. Innovative work behavior is measured using three dimensions developed by Phanniphong & Nan (2025), which include idea generation, idea promotion, and idea realization. Meanwhile, the perception of AI usage can be measured using the AI Attitude Scale (AIAS), which includes perceptions of benefits of use, potential social impacts, adoption intentions, risk perceptions, and evaluation of AI's impact on humanity (Grassini, 2023). Finally, the Bass Multifactor Leadership Questionnaire (MLQ), developed by Den Hartog et al. (1997), consists of four dimensions, namely charisma, inspiration, individual consideration, and intellectual stimulation, to assess transformational leadership.

III. RESULT AND DISCUSSION

Respondent Demographic Analysis

Demographic analysis aims to provide additional information to readers or future researchers. The demographic analysis of respondents in this study shows that the majority of respondents were female (67.9%), with the dominant age group being between 21 and 30 years (58.7%). The majority of respondents also had between 1 and 5 years of work experience (59.2%). Furthermore, the frequency of AI use was dominated by respondents who used it fairly often (27.6%) and often (24.6%). These findings indicate that the intensity of AI use among medical personnel is relatively high, thus providing a significant opportunity for this technology to support Innovative Work behavior (IWB).

Measurement Model Analysis (Outer Model)

The first measurement model analysis carried out was loading factor analysis as one of the conditions for convergent validity. Convergent validity will be achieved with a value of loading factor > 0.7 and AVE > 0.5 (Hair et al., 2017). All items of each variable were > 0.70 , thus meeting the requirements for convergent validity.

testing. Furthermore, all Composite Reliability (CR) and Cronbach's alpha (CA) values were >0.70 , indicating good reliability for each variable.

Table 1. Discriminant Validity: Heterotrait-Monotrait Ratio

Variables	PAI	Kebahagiaan	Inovatif	KT
Persepsi Penggunaan AI				
Kebahagiaan	0.340			
Perilaku Kerja Inovatif	0.483	0.358		
Kepemimpinan Transformasional	0.285	0.174	0.320	

Source: processing result of SmartPLS 4.0 (2025)

Next, the discriminant validity analysis uses Heterotrait-Monotrait Ratio (HTMT) in Table 1, which shows that all HTMT values are below the threshold of 0.90, which indicates that each construct in the model has apparent differences from the other.

Table 2. Discriminant Validity: Fornell-Larcker

Variables	PAI	Kebahagiaan	Inovatif	KT
Persepsi Penggunaan AI	0.856			
Kebahagiaan	0.320	0.881		
Perilaku Kerja Inovatif	0.458	0.357	0.827	
Kepemimpinan Transformasional	0.274	0.171	0.324	0.855

Source: processing result of SmartPLS 4.0 (2025)

Finally, Table 2 demonstrates that those Fornell-Larcker requirements have been satisfied, as seen by the superior square root values of the AVE on the diagonal in comparison to the other values for each variable. Thus, the model's discriminant validity can be declared to have been met.

Structural Model Analysis (Inner Model)

The purpose of structural model evaluation is to analyze the relationships between constructs, assess the significance value, and determine the R-square value of the research model. The first stage of the inner model is the model fit.

Table 3. Model Fit

Model	Saturated Model	Estimated Model
SRMR	0.068	0.082
NFI	0.634	0.634

Source: processing result of SmartPLS 4.0 (2025)

Standardized Root Mean Square Residual (SRMR) < 0.1 indicates that the model structure is considered suitable. The Normal Fit Index (NFI) in Table 3 shows the suitability of the model in the study with a value of 0 – 1, where the closer to the number 1, the better or more appropriate the model is.

Table 4. R-Square Adjusted

Model	R-Square Adjusted
Persepsi Penggunaan AI	0.097
Perilaku Kerja Inovatif	0.283
Kepemimpinan Transformasional	0.024

Source: processing result of SmartPLS 4.0 (2025)

The R-squared analysis in Table 4 shows promising results. The adjusted R-square value of 0.283 for IWB indicates that 28.3% of the variation in this variable can be explained by the independent variable, with the remainder influenced by factors outside the study.

Table 5. Hypothesis Testing

Hypothesis		Path Coefficients (β)	T Statistic	P Values	Conclusion
H $\rightarrow$ TL	H1	0.171	2.229	0.010	Accepted
H $\rightarrow$ AI	H2	0.320	4.336	0.000	Accepted
TL $\rightarrow$ IWB	H3	0.196	2.337	0.013	Accepted
AI $\rightarrow$ IWB	H4	0.336	4.590	0.000	Accepted
H $\rightarrow$ IWB	H5	0.216	3.012	0.001	Accepted
H $\rightarrow$ TL $\rightarrow$ IWB	H6	0.033	1.610	0.054	Rejected
H $\rightarrow$ AI $\rightarrow$ IWB	H7	0.107	3.142	0.001	Accepted

Source: processing result of SmartPLS 4.0 (2025)

The final stage in SEM-PLS analysis is hypothesis testing. Hypothesis testing posits that the independent variable affects the dependent one if the T statistic value is > 1.960 and the P value is less than 0.05. The outcomes of this test are shown in Table 7, which shows that all variable relationships have positive path coefficients (β). However, hypothesis 6 in this study was rejected because the T -statistic and P -values did not meet the requirements.

The Influence of Happiness on Transformational Leadership

The results of the study indicate that happiness exerts a positively and significantly influence on transformational leadership (TL) among medical personnel at Purwokerto Islamic Hospital, or H1, which is accepted. This finding indicates that medical personnel who feel happy in their work are more likely to display TL behaviors, such as providing inspiration, encouragement, and individual attention to coworkers. That confirms that a positive emotional state not only impacts the personal well-being of medical personnel but also their ability to influence and motivate coworkers to contribute better to hospital services. This finding is in line with research by Agaoglu et al. (2025), Carrillo et al. (2023), Conesa et al. (2024), and Torres et al. (2025), which states that positive emotions in leaders have an important contribution in shaping a more transformative leadership style. In the context of medical personnel, high levels of happiness are associated with an increased ability to provide motivation, direction, and emotional support to fellow health workers.

When associated with Social Exchange Theory, these results can be explained by the reciprocal mechanisms of social relationships within the hospital workplace. Happy healthcare workers tend to exhibit positive attitudes, empathy, and concern for their colleagues, ultimately fostering stronger trust, commitment, and teamwork. These positive interactions create a virtuous cycle of social exchange, where happiness triggers the emergence of TL behaviors among healthcare workers.

However, this finding disagrees with research by Suhartono et al. (2023), which found that happiness did not affect TL. This difference is likely due to the contextual characteristics of the medical staff at Purwokerto Islamic Hospital, who have high levels of empathy and collaborative work, making happiness more easily reflected in inspirational and transformative leadership behaviors.

The Influence of Happiness on Perception of AI Usage

The results of the study indicate that happiness exerts a positively and significantly influence on the perception of AI use among medical personnel at Purwokerto Islamic Hospital, or H2 is accepted. This finding indicates that medical personnel with high levels of happiness tend to be more open to technological developments and more positive in viewing the implementation of AI as part of the hospital's work system. A stable and positive emotional state makes medical personnel more confident in adapting to changes, including the use of AI to assist the diagnosis process, improve administrative efficiency, and improve the quality of service to patients. Thus, happiness not only reflects psychological well-being but also influences how medical personnel accept and internalize new technologies in their daily work practices.

From the perspective of Social Exchange Theory, these results can be explained by the fact that happy medical personnel will assess the provision of AI technology by hospitals as a form of support and the organization's attention to improving their performance. As a form of reciprocity, healthcare workers with positive emotional states will respond to this support with openness, a willingness to learn, and a readiness to adopt AI in clinical activities. This social exchange reflects a mutually beneficial relationship between healthcare workers and the organization, where happiness catalyzes strengthening trust and acceptance of technological innovation.

This research aligns with the findings of Agaoglu et al. (2025), who showed that healthcare workers with high levels of happiness are more receptive to new technologies because they feel more motivated and have higher self-confidence. These findings are also supported by other studies that emphasize that positive emotions

among healthcare workers play a crucial role in fostering positive perceptions of the use of AI as a means to improve service quality. In the context of Purwokerto Islamic Hospital, this suggests that happy healthcare workers are more prepared to adapt to technology-based changes and view AI as a tool that can support their professionalism and work efficiency.

The Influence of Transformational Leadership on Innovative Work Behavior

The results of the study indicate that transformational leadership (TL) exerts a positively and significantly influence on innovative work behavior (IWB) among medical personnel at Purwokerto Islamic Hospital, or H3, which is accepted. This finding indicates that leaders who can energize, articulate a clear goal, offer individual attention, and encouragement for creative thinking are proven to be able to stimulate medical personnel to generate new ideas, improve work procedures, and enhance the quality of health services. In the hospital context, leaders with a transformational style play an important role in fostering the innovative spirit of medical personnel, especially in facing service challenges, limited resources, and the need for continuous improvement in service quality. This finding is in line with Grošelj et al. (2020), Karimi et al. (2023), Lin (2023), and Messmann et al. (2022), who stated that TL encourages increased IWB.

Within the framework of Social Exchange Theory, these results can be explained by the fact that medical personnel who experience TL will perceive the leader's attention, support, and fairness in their work environment. This positive social relationship creates a sense of emotional attachment and a moral obligation for medical personnel to provide reciprocal behavior in the form of better and more IWB. Thus, TL acts as a catalyst that encourage the positive reciprocal relationship between leaders and medical personnel, where the support and inspiration provided encourage them to contribute through creativity, new ideas, and innovation in patient care.

However, these findings are inconsistent with research by Az Zahra & Etikariena (2024), Sudibjo & Prameswari (2021), and Wahyuningtias & Nugroho (2023), which found that TL did not affect IWB. This difference may be due to the different organizational contexts. In the Purwokerto Islamic Hospital, strong interpersonal relationships and high religiosity among medical personnel may strengthen the positive effect of TL on fostering IWB.

The Influence of Perception of AI Usage on Innovative Work Behavior

The results of the study show that the perception of AI use exerts a positively and significantly influence on IWB among medical personnel at Purwokerto Islamic Hospital, or H4, which is accepted. These findings indicate that healthcare professionals with positive perceptions of AI tend to be more open to change and eager to utilize technology to improve the quality of healthcare services. When AI is viewed as a tool that can simplify tasks, increase diagnostic accuracy, and expedite service processes, healthcare professionals are encouraged to develop new ways of working, generate creative solutions, and actively participate in continuous improvement processes. In the hospital context, this suggests that positive perceptions of digital technology can be a key driver of innovation in healthcare services.

In the framework of Social Exchange Theory, these results can be explained by the fact that the provision of AI technology by hospitals is perceived by medical personnel as a form of organizational support and investment in enhancing the efficiency and quality of their work. As a form of reciprocity, medical personnel responded to this support by increasing IWB, both through the development of new ideas and the implementation of more effective and adaptive work approaches. Thus, positive perceptions of AI not only influence acceptance of the technology but also strengthen the commitment of medical personnel to make innovative contributions to hospital progress.

This research aligns with research by Alagele et al. (2025), Atalla et al. (2024), Elkholy et al. (2024), and Verma & Singh (2022), which shows that positive perceptions of digital technology directly contribute to increased innovative behavior in the healthcare sector. These results are also supported by research by Agaoglu et al. (2025), which states that medical personnel who believe in the benefits of AI are more motivated to innovate in clinical practice. In the context of Purwokerto Islamic Hospital, these results confirm that the adoption of AI-based technology not only helps work effectiveness but also serves as a stimulus for the development of IWB among medical personnel.

The Influence of Happiness on Innovative Work Behavior

The results of the study indicate that happiness exerts a positively and significantly influence on IWB among medical personnel at Purwokerto Islamic Hospital, or H5, which is accepted. This finding indicates that the higher the level of happiness experienced by medical personnel, the greater their tendency to demonstrate IWB, such as generating new ideas, developing creative solutions, and initiating improvements in healthcare

procedures. A positive emotional state makes medical personnel more enthusiastic, more open to change, and has intrinsic motivation to improve the quality of hospital services. Thus, happiness not only functions as an indicator of psychological well-being but also as a key driving factor in the emergence of IWB among medical personnel.

In the framework of Social Exchange Theory, happiness can be understood as a positive emotional experience that encourages medical personnel to reciprocate the support and attention they receive from the organization. When hospitals cultivate a work atmosphere that fosters psychological well-being, medical personnel will feel valued and have a strong emotional attachment to the organization. As a form of reciprocity, they then express this satisfaction through IWB, whether by proposing new ideas, implementing more efficient work approaches, or taking initiatives to improve the quality of patient care. Thus, happiness plays a fundamental role in strengthening positive social relationships between healthcare workers and the organization.

This research aligns with Al-Shami et al. (2023), Fadila et al. (2025), and Hasanati et al. (2025), who found that happiness contributes to increased creativity and innovation among healthcare workers. Similar results were also shown by Agaoglu et al. (2025) research, which revealed that healthcare workers with high levels of happiness tend to be more proactive and innovative in facing work challenges, thus contributing directly to improving the quality of hospital services. In the context of Purwokerto Islamic Hospital, these findings emphasize that happiness is an important psychological capital that encourages healthcare workers to continuously innovate in an effort to improve the effectiveness and quality of healthcare services.

The Role of Transformational Leadership in Mediating the Effect of Happiness on Innovative Work Behavior

The results of the study indicate that transformational leadership (TL) does not act as a mediator in the relationship between happiness and IWB among medical personnel at Purwokerto Islamic Hospital, or H6 is rejected. That means that although happy medical personnel demonstrate high work morale and positive engagement in professional activities, this happiness does not significantly increase TL practices that can strengthen innovative behavior. In other words, the happiness of medical personnel has a more direct influence on innovative behavior without going through the formation of TL roles. This finding indicates that in the hospital context, happiness functions more as an individual psychological drive than a social factor that encourages the emergence of a TL style among medical personnel.

If associated with Social Exchange Theory, these results suggest that the positive reciprocal relationship that arises from the happiness of healthcare workers does not always lead to TL. Although happy healthcare workers tend to have positive emotions and high motivation, these conditions are not necessarily accompanied by a tendency to lead inspirationally or provide transformational influence on colleagues. That may be influenced by the characteristics of healthcare workers' work, which is more oriented towards individual clinical responsibility than team leadership roles. Furthermore, the hierarchical organizational structure and work system in hospitals can limit the space for healthcare workers to optimally express TL styles in the context of daily operations.

This study differs from the findings of Agaoglu et al. (2025), who explained that leader happiness contributes to the emergence of a TL style that impacts the innovative behavior of subordinates. These differences in results indicate that in the context of Purwokerto Islamic Hospital, there are other factors that more dominantly influence the relationship between happiness and IWB, such as high workloads, limited resources, and the focus of medical personnel on the technical aspects of patient care. Thus, TL cannot function effectively as a mediating mechanism between happiness and IWB in the hospital environment.

The Role of Perception of Artificial Intelligence Usage in Mediating the Effect of Happiness on Innovative Work Behavior

The results of the study indicate that perceptions of AI use mediate the influence of happiness on IWB among medical personnel at Purwokerto Islamic Hospital, or H7, which is accepted. This finding indicates that medical personnel who feel happy are not only motivated to demonstrate innovative behavior directly, but they also tend to develop positive perceptions about the use of AI as a work aid. This positive perception strengthens the relationship between happiness and innovative behavior because happy healthcare workers are more receptive to new technologies, see the benefits of AI in increasing efficiency and accuracy, and utilize it to find new ways to improve the quality of healthcare services. Thus, happiness acts as a psychological trigger that fosters openness to technological innovation, which ultimately strengthens IWB in healthcare workers.

From the perspective of Social Exchange Theory, these results demonstrate that the positive emotional experiences felt by medical personnel encourage reciprocal attitudes toward organizational support in the form of AI-based facilities and technology. Happy medical personnel perceive the presence of AI as a form of the

hospital's attention and commitment to simplifying their tasks. In response to this support, medical personnel express satisfaction and trust in the organization through increased IWB, such as implementing new ideas and optimizing the use of technology in clinical activities. Thus, happiness not only strengthens the intrinsic motivation of medical personnel but also serves as an emotional foundation that facilitates the acceptance and utilization of technology to support innovation in hospital services.

This research aligns with the findings of Agaoglu et al. (2025), who found that employee happiness increases acceptance of new technologies, ultimately strengthening IWB. These findings also support the views of Alagele et al. (2025) and Atalla et al. (2024), who emphasized that psychological well-being plays a crucial role in building individual readiness to adapt to digital technology developments. In the context of Purwokerto Islamic Hospital, these findings demonstrate that the happiness of medical personnel and support for AI implementation are a strategic combination that can strengthen a culture of innovation and improve the effectiveness of healthcare services in the hospital.

IV. CONCLUSION

The results of this study concluded that happiness has a positive and significant effect on transformational leadership (TL), perceptions of AI use, and innovative work behavior (IWB) among medical personnel at Purwokerto Islamic Hospital. Furthermore, happiness was also shown to have an indirect effect on IWB through the mediation of perceptions of AI use, but not through TL. These findings suggest that psychological factors such as happiness play a significant role in driving innovation. In contrast, the significant mediation pathway is more evident for technology factors than for TL.

Specifically, happiness has been shown to encourage healthcare workers to be more open, creative, and active in generating new ideas that support improved healthcare services. However, when associated with TL, happiness has not been shown to increase innovative behavior through this pathway. This finding implies that hospitals still need to pay attention to the psychological well-being of healthcare workers and develop a TL style, but to encourage innovation further, this factor is not a strong enough mediator in the relationship between happiness and IWB. Based on descriptive analysis, the lowest aspect of TL was the leader's openness in creating discussion spaces to analyze problems from various perspectives. Therefore, hospitals need to strengthen their practices of participatory leadership that provides space for medical personnel to express opinions, exchange ideas, and be actively involved in decision-making.

On the other hand, the study results show that perceptions of AI use can mediate the relationship between happiness and IWB. That means that happy healthcare workers tend to have positive perceptions of technology, which then encourages them to be more innovative in their daily work practices. The practical implication of this finding is that hospitals need to optimize their AI utilization strategies through appropriate training, mentoring, and governance, so that healthcare workers' positive perceptions of AI can genuinely become a catalyst for IWB. Furthermore, the perception of AI's benefits for humanity is a crucial focus, necessitating the improvement of healthcare workers' understanding of the ethical and social contributions of AI technology through a humanitarian-based digital literacy program.

Furthermore, descriptive results also indicate that the weakest aspect of IWB is the initiative of medical personnel in seeking information from work guides, superiors, or expert sources. That indicates the need to strengthen a culture of continuous learning (continuous learning culture) so that medical personnel are more active in seeking, refining, and applying new knowledge in their work practices. Meanwhile, in terms of happiness, the lowest aspect was found in medical personnel who felt less intense and enthusiastic about their work. This condition emphasizes the importance of hospital policies that focus on employee well-being, such as work-life balance programs (work-life balance), performance awards, and a supportive work environment to maintain the morale and vitality of medical personnel in the long term.

This study still has limitations, particularly the sample size, which is focused on a single hospital, thus limiting the generalizability of the results. For future research, it is recommended to expand the research object to other hospitals of different types and locations, including a comparison between public and private hospitals. Additionally, other mediating variables, such as psychological empowerment, organizational support, or job satisfaction, can be tested to enrich the understanding of the factors that influence the IWB of medical personnel.

REFERENCES

- Agaoglu, F. O., Bas, M., Tarsuslu, S., & Ekinci, L. O. (2025). Serial Mediating Role of Transformational Leadership and Perception of Artificial Intelligence Use in The Effect of employee Happiness on Innovative Work Behaviour in Nurses. *BMC Nursing*, 24(137). <https://doi.org/10.1186/s12912-025-02776-9>
- Al-Shami, S. A., Al Mamun, A., Rashid, N., & Cheong, C. B. (2023). Happiness at Workplace on Innovative Work behaviour and Organisation Citizenship Behaviour through Moderating Effect of Innovative Behaviour. *Heliyon*, 9(5). <https://doi.org/10.1016/j.heliyon.2023.e15614>
- Alagele, H. K. H., Neama, N. H., Alkaseer, N. ahmed, Al Dulaimi, H. A., & Abd, S. E. (2025). The Mediating Role of Artificial Intelligence on the Relationship between Organizational Climate and Employee Creativity Behavior: A Field Study. *Journal of Ecohumanism*, 4(2), 38–46. <https://doi.org/10.62754/joe.v4i2.5736>
- Arnadi, A., Aslan, A., & Vandika, A. Y. (2024). Penggunaan Kecerdasan Buatan Untuk Personalisasi Pengalaman Belajar. *Jurnal Ilmu Pendidikan Dan Kearifan Lokal*, 4(5), 369–380.
- Atalla, A. D. G., El-Ashry, A. M., & Mohamed, S. M. S. (2024). The Moderating Role of Ethical Awareness in The Relationship between Nurses' Artificial Intelligence Perceptions, Attitudes, and Innovative Work Behavior: A Cross-Sectional Study. *BMC Nursing*, 23, 1–11. <https://doi.org/10.1186/s12912-024-02143-0>
- Az Zahra, A. C., & Etikariena, A. (2024). The Role of Transformational Leadership on Innovative Work Behavior: A Moderated-Mediation Study. *Jurnal Psikologi*, 23(1), 81–96. <https://doi.org/10.14710/jp.23.1.81-96>
- Butt, R. S., Wen, X., & Hussain, R. Y. (2020). Mediated effect of employee job satisfaction on employees' happiness at work and analysis of motivational factors: Evidence from telecommunication sector. *Asian Business Research Journal*, 5, 19–27.
- Canal Carrillo, A. I., Ovalles-Toledo, L. V., Sandoval Barraza, L. A., & Valdez Palazuelos, O. (2023). Liderazgo Transformacional y su relación con la felicidad en el trabajo: Empresas sinaloenses del sector agroindustrial. *Revista de Ciencias Sociales*, XXIX(1), 79–94. <https://doi.org/10.31876/rcs.v29i1.39736>
- Den Hartog, D. N., Van Muijen, J. J., & Koopman, P. L. (1997). Transactional versus Transformational Leadership: An Analysis of The MLQ. *Journal of Occupational and Organizational Psychology*, 70(1), 19–34. <https://doi.org/10.1111/j.2044-8325.1997.tb00628.x>
- Ekawati, S. S., & Andriani, H. (2022). Marketing Mix Strategy for Health Services at Yadika Pondok Bambu Hospital during The Covid-19 Pandemic. *Jurnal Medika Hutama*, 3(2), 2073–2083.
- Elkholy, S. M., Ageiz, M. H., & Ahmed, H. (2024). Artificial Intelligence and Its Relation to Nurses' Innovative Behavior: Moderating Role of Job Control. *Assiut Scientific Nursing Journal*, 12(43), 53–63. <https://doi.org/10.21608/asnj.2024.268620.1785>
- Fadila, Rosita, S., & Hendriyaldi. (2025). Workplace Happiness dan Employee Engagement Terhadap Produktivitas Karyawan Melalui Inovatif Kerja. *Advances in Management & Financial Reporting*, 3(2), 160–179. <https://doi.org/10.60079/amfr.v3i2.517>
- Feitor, S., Martins, T., & Borges, E. (2023). Shorted Happiness at Work Scale: Psychometric Proprieties of the Portuguese Version in a Sample of Nurses. *International Journal of Environmental Research and Public Health*, 20(658). <https://doi.org/10.3390/ijerph20010658>
- Ferry, A. B., Sidin, I., & Wahyu, A. (2021). An Analysis of the Effects of Human Resources Management on Healthcare Innovation in Hospital: A Scoping Review. *Journal of Asian Multicultural Research for Medical and Health Science Study*, 2(2), 70–83. <https://doi.org/10.47616/jamrmhss.v2i2.141>
- Grassini, S. (2023). Development and Validation of The AI Attitude Scale (AIAS-4): A Brief Measure of General Attitude toward Artificial Intelligence. *Frontiers in Psychology*, 14, 1–12. <https://doi.org/10.3389/fpsyg.2023.1191628>
- Grošelj, M., Černe, M., Penger, S., & Grah, B. (2020). Authentic and Transformational Leadership and Innovative Work Behaviour: The Moderating Role of Psychological Empowerment. *European Journal of Innovation Management*, 24(3), 677–706. <https://doi.org/10.1108/EJIM-10-2019-0294>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (2nd ed.)*. SAGE Publications.
- Hanna, F. A., Tamengkel, L. F., & Rumawas, W. (2024). Pengaruh Budaya Organisasi dan Knowledge Sharing Terhadap Perilaku Kerja Inovatif pada RS. Sentra Medika Minahasa Utara. *Productivity*, 5(3), 957–965. <https://doi.org/10.35797/ejp.v5i3.55710>
- Hasanati, N., Karima, A. K., & Surahman. (2025). Is the Influence of Quality of Work Life on Innovative Work Behavior Mediated by Happiness at Work in Teachers. *Jurnal Ilmiah Psikologi Terapan*, 13(1), 41–47. <https://doi.org/10.22219/jipt.v13i1.38021>
- Jony, Safari, S., Rivai, Y., & Ilyas. (2024). Model untuk Meningkatkan Kinerja dan Kepuasan Kerja Karyawan Melalui Motivasi dan Perilaku Kerja Inovatif. *LUCRUM: Jurnal Bisnis Terapan*, 4(1), 115–129.

- Karimi, S., Malek, F. A., Farani, A. Y., & Liobikienė, G. (2023). The Role of Transformational Leadership in Developing Innovative Work Behaviors: The Mediating Role of Employees' Psychological Capital. *Sustainability*, 15(2). <https://doi.org/10.3390/su15021267>
- Liaquat, M., & Mehmood, K. K. (2017). Organization Citizenship Behavior: Notion of Social Exchange Theory. *Journal of Business and Social Review in Emerging Economies*, 3(2), 209–216. <https://doi.org/10.26710/jbsee.v3i2.137>
- Lin, Q. (2023). Transformational Leadership and Innovative Work Behavior: The Role of Identification, Voice and Innovation Climate. *International Journal of Hospitality Management*, 113. <https://doi.org/10.1016/j.ijhm.2023.103521>
- Martínez-Conesa, I., Iglesias-Sánchez, P. P., Jambrino-Maldonado, C., & Fernández-Díaz, E. (2024). Do happy leaders have a different leadership style? 8 *International Academic and Professional Congress on Happiness*. <https://doi.org/10.31876/racs.v29i1.39736>
- Messmann, G., Evers, A., & Kreijns, K. (2022). The Role of Basic Psychological Needs Satisfaction in The Relationship between Transformational Leadership and Innovative Work Behavior. *Human Resource Development Quarterly*, 33(1), 29–45. <https://doi.org/10.1002/hrdq.21451>
- Novitasari, D., Siswanto, E., Purwanto, A., & Fahmi, K. (2025). Authentic Leadership and Innovation: What is the Role of Psychological Capital? *International Journal of Social and Management Studies*, 1(1), 1–21. <https://doi.org/10.5555/ijosmas.v1i1.1>
- Odugbesan, J. A., Aghazadeh, S., Al Qaralleh, R. E., & Sogeke, O. S. (2023). Green talent management and employees' innovative work behavior: the roles of artificial intelligence and transformational leadership. *Journal of Knowledge Management*, 27(3), 696–716.
- Phanniphong, K., & Na-Nan, K. (2025). Development and Validation of a Factor Analysis-Validated Comprehensive Scale for Measuring Innovative Work Behavior. *Sustainable Futures*, 9, 1–8. <https://doi.org/10.1016/j.sfr.2025.100704>
- Rahmadiani, Y., Lukman, S., & Semiarty, R. (2020). Analisis Pengaruh Kepemimpinan dan Motivasi Kerja Terhadap Turnover Intention Karyawan dengan Komitmen Organisasi Sebagai variabel Mediasi di Rumah Sakit Islam Siti Rahmah. *Jurnal Kesehatan Andalas*, 9(1), 18–25. <https://doi.org/10.25077/jka.v9i1.1218>
- Ramachandran, G., & Kannan, S. (2021). Artificial intelligence and deep learning applications: a review. *Journal of Artificial Intelligence, Machine Learning and Neural Network*, 12, 10–13.
- Rimatanti, N. F., & Darmawan, A. (2023). Influence of Quality of Work Life (QWL), Organizational Commitment (OC) and Transformational Leadership on Organizational Citizenship Behavior (OCB). *Journal of Economics, Social, and Humanities*, 1(1), 12–26. <https://doi.org/10.30595/jesh.v1i1.76>
- Setianto, C. I., Hadi, S. P., & Seno, A. H. D. (2022). Pengaruh Beban Kerja dan Motivasi Kerja Terhadap Turnover Intention Karyawan Rumah Sakit Panti Wilasa Citarum Semarang. *Jurnal Ilmu Administrasi Bisnis*, 10(3), 1238–1246. <https://doi.org/10.14710/jiab.2021.31959>
- Setyowati, S., & Etikariena, A. (2019). Peran Gaya Pemecahan Masalah dalam Hubungan Kepemimpinan Transformasional dengan Perilaku Kerja Inovatif. *Jurnal Diversita*, 5(2), 115–125.
- Sudibjo, N., & Prameswari, R. K. (2021). The effects of knowledge sharing and person–organization fit on the relationship between transformational leadership on innovative work behavior. *Heliyon*, 7(6), e07334. <https://doi.org/10.1016/j.heliyon.2021.e07334>
- Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Suhartono, Sulastiningsih, Chasanah, U., Widiastuti, N., & Purwanto, W. (2023). The Relationship of Leadership, Discipline, Satisfaction, and Performance: A Case Study of Steel Manufacture in Indonesia. *International Journal of Professional Business Review*, 8(2). <https://doi.org/10.26668/businessreview/2023.v8i2.1146>
- Verma, S., & Singh, V. (2022). Impact of Artificial Intelligence-Enabled Job Characteristics and Perceived Substitution Crisis on Innovative Work Behavior of Employees from High-Tech Firms. *Computers in Human Behavior*, 131. <https://doi.org/10.1016/j.chb.2022.107215>
- Wahyuningtias, A. H., & Nugroho, S. H. (2023). The Influence Of Transformational Leadership And Person-Organizational Fit On Innovative Work Behavior Through Knowledge Sharing Behavior In Formal Education Units. *Jurnal Pamator: Jurnal Ilmiah Universitas Trunojoyo*, 16(1), 189–206. <https://doi.org/10.21107/pamator.v16i1.19024>
- Yusufa, J., Ferrosnita, K., Pribadi Kornarius, Y., Caroline, A., & Gunawan, A. (2023). Pengaruh Gaya Kepemimpinan Transformasional Terhadap Innovative Work Behaviour Karyawan di Salah Satu Rumah Sakit di Kota Cilegon. *Journal of Economics and Business UBS*, 12(6), 3615–3624. <https://doi.org/10.52644/joeb.v2i6.854>

Zárate-Torres, R., Rey-Sarmiento, C. F., & Acosta-Prado, J. C. (2025). Social Impact of Happiness on Transformational Leadership in Students from Colombian Universities. *Frontiers in Psychology*, 16. <https://doi.org/10.3389/fpsyg.2025.1571572>