

The Impact of Training, Knowledge Management, and Discipline on Employee Effectiveness, with the Work Environment as A Moderating Variable at the Ministry of Health of the Republic of Indonesia

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Keywords:

training; knowledge management; work discipline; work environment; employee effectiveness

Abstract

Employee effectiveness is a critical factor in supporting the achievement of organizational goals, particularly in public sector institutions such as the Ministry of Health of the Republic of Indonesia, which faces increasing demands arising from digital transformation and complex public service challenges. This study aims to examine the effects of training, knowledge management, and work discipline on employee effectiveness, as well as the moderating role of the work environment in these relationships. This research employed a quantitative approach using an explanatory research design. Data were collected through questionnaires distributed to employees of the Ministry of Health of the Republic of Indonesia, and the data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS. The results indicate that training, knowledge management, and work discipline have positive and significant effects on employee effectiveness. Training was identified as the strongest factor contributing to employee effectiveness, followed by knowledge management and work discipline. Furthermore, the work environment significantly moderated the relationships between training, knowledge management, and work discipline and employee effectiveness, indicating that a supportive work environment strengthens the influence of these factors. The findings highlight that improving employee effectiveness requires not only individual competency development but also organizational support through effective knowledge management, discipline reinforcement, and the creation of a conducive workplace environment. This study provides practical implications for the Ministry of Health in developing sustainable human resource management strategies to enhance employee effectiveness and organizational performance.

INTRODUCTION

The Ministry of Health of the Republic of Indonesia plays a strategic role in supporting national health development through policy formulation, healthcare service implementation, disease control, health workforce management, and digital health system transformation (Jeilani & Hussein, 2025). In performing these functions, employee effectiveness is a critical factor because the success of national health programs depends heavily on the ability of employees to achieve organizational targets in a timely, high-quality, and efficient manner (Al Wali et al., 2023).

However, employee effectiveness within the Ministry of Health continues to face various challenges. Based on the 2024 Ministry of Health Performance Report, among the 35 main performance indicators established, 10 indicators had not yet achieved their targets. This condition indicates that although various health transformation programs have been implemented, a gap remains between organizational targets and actual performance outcomes (Cavalcanti et al., 2022). These challenges are associated with increasing work demands resulting from digital transformation, the complexity of national health programs, and the need for continuous adaptation to changes in work systems (Ingsih et al., 2024; Nöhammer & Drexel, 2024).

This phenomenon indicates that improving employee effectiveness is influenced not only

by individual capabilities but also by organizational factors that support work processes. One important factor is training. According to Noe (2017), training is a systematic process designed to improve employees' knowledge, skills, and abilities to enhance work performance. In the context of the Ministry of Health, training serves as an important instrument to ensure that employees can adapt to developments in health technology, policy changes, and increasingly complex public service demands (McDermott et al. 2015; Organization 2015, 2018, 2022).

In addition to training, knowledge management is another important factor in improving employee effectiveness. Nonaka and Takeuchi (1995) explained that knowledge management enables organizations to create, store, and distribute knowledge to support decision-making and task completion. However, public sector organizations continue to face challenges related to knowledge management, including limited information integration, inadequate documentation of work procedures, and an underdeveloped culture of knowledge sharing (Dewah et al. 2016; Janus 2016; McNabb 2015; Phaladi 2024).

Another factor influencing employee effectiveness is work discipline. Hasibuan (2016) stated that work discipline reflects employees' awareness of and compliance with organizational rules and responsibilities. Within the Ministry of Health, discipline is not limited to administrative compliance but also involves reporting accuracy, data reliability, and achievement of organizational targets. Low levels of work discipline may negatively affect service quality and the effectiveness of strategic government programs (Itang 2015; Kayode et al. 2025).

Although training, knowledge management, and work discipline theoretically contribute to improving employee effectiveness, these relationships may not always occur directly. The work environment is an important factor that can strengthen or weaken the relationship between these variables and employee effectiveness. Based on the Job Demands-Resources (JD-R) theory, the work environment represents an organizational resource that supports employees in optimally applying their competencies, knowledge, and work behaviors. A supportive work environment, including adequate facilities, effective communication, collaboration, and technological support, enables employees to perform their tasks more effectively.

Several previous studies have examined the relationships between training, knowledge management, work discipline, and employee effectiveness or performance. However, most existing studies have focused primarily on direct relationships among variables and have not sufficiently examined the moderating role of the work environment, particularly in public sector organizations undergoing digital transformation, such as the Ministry of Health of the Republic of Indonesia. This represents an important research gap because work environment conditions may determine whether organizational resources can effectively contribute to improved employee effectiveness.

Based on a pre-survey conducted among employees of the Ministry of Health of the Republic of Indonesia, several challenges related to employee effectiveness were identified. Approximately 55% of respondents indicated that they had not been able to achieve work targets optimally, while 57.5% stated that the effectiveness of task completion still required improvement. Furthermore, 52.5% of respondents experienced difficulties in accessing work-related information and documents, while 57.5% reported that communication and collaboration among employees had not yet been optimal. These findings indicate that improving employee effectiveness requires attention to both individual and organizational factors.

The urgency of this research lies in the need to strengthen human resource quality within the Ministry of Health to support the national health transformation agenda. Effective employees are expected to produce high-quality outputs, achieve organizational objectives, and contribute to the success of public health programs. Therefore, understanding the factors influencing employee effectiveness is essential as a basis for developing more appropriate

human resource management policies.

The novelty of this study lies in examining the work environment as a moderating variable in the relationship between training, knowledge management, work discipline, and employee effectiveness. This approach provides a more comprehensive understanding that employee effectiveness is determined not only by individual capabilities but also by organizational conditions that support the application of competencies and work behaviors.

Therefore, this study aims to examine the effects of training, knowledge management, and work discipline on employee effectiveness, with the work environment serving as a moderating variable at the Ministry of Health of the Republic of Indonesia. The findings are expected to contribute academically to the development of public sector human resource management studies and provide practical recommendations for the Ministry of Health in improving employee effectiveness sustainably.

Based on the research background and identified problem limitations, this study was formulated to examine the factors influencing employee effectiveness at the Ministry of Health of the Republic of Indonesia. Employee effectiveness is considered an essential component in supporting organizational performance, particularly in achieving public service objectives. Therefore, this research focuses on analyzing the effects of training, knowledge management, and work discipline on employee effectiveness. In addition, this study examines the moderating role of the work environment in strengthening or weakening the relationships between these independent variables and employee effectiveness. Specifically, this research investigates whether training, knowledge management, and work discipline significantly affect employee effectiveness and whether the work environment moderates these relationships among employees at the Ministry of Health of the Republic of Indonesia. In accordance with these research objectives, this study aims to analyze the effects of training, knowledge management, and work discipline on employee effectiveness and examine the moderating role of the work environment in the relationships between training and employee effectiveness, knowledge management and employee effectiveness, and work discipline and employee effectiveness. Through this analysis, the study is expected to provide empirical evidence regarding the importance of human resource development factors and organizational conditions in improving employee effectiveness. The findings are also expected to offer practical recommendations for the Ministry of Health in developing appropriate strategies related to employee training programs, knowledge management practices, discipline improvement, and the creation of a supportive work environment to enhance organizational performance.

RESEARCH METHOD

Research Design

This research, entitled “The Impact of Training, Knowledge Management, Discipline on Employee Effectiveness with Work Environment as a Moderation Variable in the Ministry of Health of the Republic of Indonesia,” employed a quantitative approach to examine relationships among variables using statistical analysis of numerical data.

The quantitative approach was selected because this study aimed to examine the causal relationships among Training (X1), Knowledge Management (X2), Discipline (X3), Work Environment (Z), and Employee Effectiveness (Y). This approach enabled systematic measurement of each variable and empirical analysis of the relationships among variables in an objective and structured manner. According to Creswell (2018), quantitative research is an approach used to objectively test theories by examining measurable relationships among variables through research instruments that generate numerical data for statistical analysis.

This research was based on the Job Demands–Resources (JD-R) Theory, which explains that job resources can enhance employee motivation, engagement, and work effectiveness. In this study, Training, Knowledge Management, and Discipline were positioned as primary job

resources that supported improvements in employee effectiveness. Meanwhile, the Work Environment was positioned as a contextual resource serving as a moderating variable that strengthened or weakened the effects of these factors on Employee Effectiveness as an organizational outcome.

The study employed an explanatory research design to examine causal relationships among variables through hypothesis testing based on established theoretical foundations. According to Sugiyono (2022), explanatory research aims not only to describe variable conditions but also to empirically explain relationships among variables.

Based on these objectives, this study examined not only the conditions of Training, Knowledge Management, Discipline, Work Environment, and Employee Effectiveness but also the direct and moderating effects among variables according to the proposed research model. Specifically, the study analyzed the effects of Training, Knowledge Management, and Discipline on Employee Effectiveness and examined the moderating role of the Work Environment in strengthening or weakening these relationships within the Ministry of Health of the Republic of Indonesia.

The research data were collected from employees of the Ministry of Health of the Republic of Indonesia through a closed-ended questionnaire using a five-point Likert scale. Each variable was measured using indicators developed from relevant theories and previous studies. In the research model, Training (X1), Knowledge Management (X2), and Discipline (X3) served as independent variables, Work Environment (Z) served as the moderating variable, and Employee Effectiveness (Y) served as the dependent variable. Before the main data collection, the research instrument was evaluated through expert judgment to assess the suitability of the indicators with the theoretical constructs. A pilot test was also conducted with at least 30 respondents to evaluate instrument validity and reliability. Indicators that did not meet validity and reliability criteria were excluded, ensuring that only appropriate measurement items were used in the study.

Data analysis was conducted using Structural Equation Modeling based on Partial Least Squares (PLS-SEM) with the assistance of SmartPLS software. This method was selected because it enables simultaneous analysis of relationships among latent variables, including direct and moderating effects, and is suitable for complex predictive research models.

The sample size was determined using the Slovin formula because the total population of employees at the Ministry of Health of the Republic of Indonesia was known. This method was used to obtain a representative sample size based on a predetermined margin of error, allowing the research findings to be generalized more accurately.

Research Location and Place

This research was carried out at the Ministry of Health of the Republic of Indonesia which is located at Jl. H.R. Rasuna Said Blok X-5 Kav. 4–9, Kuningan, South Jakarta in June 2026. The selection of the research location was based on the suitability between organizational phenomena and the variables studied, namely *Training*, *Knowledge Management*, *Discipline*, *Work Environment*, and *Employee Effectiveness*. The Ministry of Health of the Republic of Indonesia is a central government agency that has a strategic role in the formulation and implementation of policies in the national health sector. As a public organization with a complex bureaucratic structure and a large number of employees, the Ministry of Health of the Republic of Indonesia actively implements various human resource development programs, including competency-based training, strengthening the *Knowledge Management* system, and enforcing *Discipline* apparatus in accordance with applicable personnel regulations. This makes the institution relevant as a research location that examines organizational factors that affect *Employee Effectiveness*.

In addition, the work dynamics within the Ministry of Health of the Republic of Indonesia, which involves cross-unit coordination, policy-based decision-making, and the

demand for achieving high performance targets, demands the creation of a conducive and professional Work Environment. Therefore, the research at this location is expected to provide an empirical picture of how *Training, Knowledge Management, and Discipline* contribute to shaping a *Work Environment* that supports the improvement of *Employee Effectiveness*.

Population and Sample

Populasi

Population is a whole subject or object that has certain characteristics and is of concern to researchers. According to Sugiyono (2022), population is a generalized area consisting of objects or subjects that have certain qualities and characteristics that are determined by the researcher to be studied and then drawn conclusions. In this study, the population used is all relevant employees and those in the General Secretariat Unit, namely employees who are directly involved in the implementation of daily tasks and human resource development within the Ministry of Health of the Republic of Indonesia which is located at the head office on Jl. H.R. Rasuna Said Blok X-5 Kav. 4–9, Kuningan, South Jakarta, consisting of 1,391 civil servants.

This population was chosen because all employees have a direct relationship with the variables studied, namely *Training, Knowledge Management, Discipline, Work Environment, and Employee Effectiveness*. All employees are involved in the competency development system, organizational knowledge management, and the application of *work discipline* which is the focus of this research. Thus, the population is considered relevant to test the conceptual model that has been formulated.

Sample

Samples are part of the number and characteristics possessed by the population. According to Sugiyono (2022), samples are part of the number and characteristics possessed by the population that must be able to represent the condition of the population as a whole so that the results of the study can be generalized to the population being studied. In the selection of samples, a sampling technique is used, namely probability sampling, such as stratified random sampling, so that each subgroup of employees has the same opportunity to be represented. That way, the data obtained is unbiased, represents real conditions, and is able to describe various characteristics of employees from various departments. This is important so that the results of the analysis can be generalized broadly and objectively.

The determination of the number of samples in this study uses the Slovin formula because the number of populations is known for sure. The Slovin formula is used to determine the minimum sample size that can represent a population with a certain error rate. In this study, the error tolerance rate was set at 5% (0.05).

The Slovin formula is as follows:

$$n = \frac{N}{1 + Ne^2}$$

Description:

n = number of samples

N = total population

e = error tolerance

With a population (N) of 1,391 employees and an error rate of 5% (0.05), the number of samples is calculated as follows:

$$n = \frac{1391}{1 + 1391(0,05)^2}$$

$$n = \frac{1391}{1 + 1391(0,0025)}$$

$$n = \frac{1391}{4,4775}$$

$$n = 310,67$$

$$n \approx 311$$

The results of the calculation were rounded to 311 respondents. Thus, the minimum number of samples used in this study is 311 employees.

Furthermore, the sampling technique used is *proportionate stratified random sampling*, which is a sampling technique based on a certain strata or group in the population proportionally. This technique was chosen so that each work unit within the Ministry of Health of the Republic of Indonesia has the same opportunity to become a respondent, so that the data obtained is more representative and can describe the condition of the population as a whole.

Analytical Techniques

The data analysis technique in this study uses the Structural Equation Modeling (SEM) method based on Partial Least Squares (PLS) which is processed with the help of the SmartPLS application. The PLS-SEM method was chosen because it was able to analyze the relationships between latent constructs simultaneously, both direct relationships and relationships involving the moderation effect. In addition, this method is suitable for predictive research, has a relatively complex model, and does not require strict normal data distribution.

This study examines the relationship between *Training (X1)*, *Knowledge Management (X2)*, *Discipline (X3)*, *Work Environment (Z)* as a moderation variable, and *Employee Effectiveness (Y)* as a dependent variable. The research model was designed to determine the direct influence of the three independent variables on *Employee Effectiveness* and examine the role of the Work Environment in strengthening or weakening these relationships. The number of samples in this study was determined using the Slovin formula because the number of population has been known for sure, which is 1,391 employees. With an error tolerance of 5 percent, a minimum sample of 311 respondents was obtained which was used as research data.

Descriptive Analysis

Descriptive analysis was used to provide an overview of respondent characteristics and response tendencies to research variables. The variables analyzed included *Training*, *Knowledge Management*, *Discipline*, *Work Environment*, and *Employee Effectiveness*.

The analysis was carried out by calculating the mean value, minimum value, maximum value, standard deviation, and frequency distribution. The results of this analysis were used to describe the initial condition of the research variables before hypothesis testing was carried out.

Inferential Analysis

Inferential analysis is used to test the research hypothesis and find out the relationships between variables in the research model. The test was carried out using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method with the help of SmartPLS through the bootstrapping technique.

The hypothesis is accepted if the t-statistical value ≥ 1.96 and the p-value ≤ 0.05 at a significance level of 5 percent. This analysis was used to test the direct influence of Training,

Knowledge Management, and Discipline on Employee Effectiveness, as well as to test the role of Work Environment moderation in strengthening or weakening these relationships.

Evaluation of Measurement Models (*Outer Model*)

The evaluation of the outer model aims to test the quality of the indicator in measuring latent constructs. Testing is carried out through:

- a. Convergent validity (outer loading ≥ 0.70 and AVE ≥ 0.50)
- b. Discriminant validity (Fornell-Larcker and HTMT < 0.90)
- c. Construct reliability (Cronbach's Alpha and Composite Reliability ≥ 0.70)

If all criteria are met, then the measurement model is declared feasible for use at the structural analysis stage.

Evaluation of Structural Models (*Inner Model*)

Internal model evaluation was carried out to test the relationship between variables according to the research hypothesis. Testing is carried out through the following indicators:

- a. Coefficient of determination (R^2)
- b. Significance of path coefficient (bootstrapping)
- c. Effect size (f^2)
- d. Predictive relevance (Q^2)

The moderation test was carried out by forming an interaction variable between the Work Environment and each independent variable. The moderation effect was declared significant if the t-statistic value ≥ 1.96 and the p-value ≤ 0.05 .

RESULTS AND DISCUSSION

Description of Research Variables

The *training variables* in this study were used to measure employees' perceptions of the implementation of the training program organized by the Ministry of Health of the Republic of Indonesia. The aspects measured included the suitability of the training material with the needs of the job, the opportunity to participate in the training, the quality of methods and resource persons, organizational and supervisors' support for competency development, and the benefits of training in improving employee abilities and performance. The responses of the respondents to the *training variables* can be seen in

Based on the descriptive results of the Training variable, an overall average score of 3.95 was obtained which was included in the agree category. These results show that respondents have a positive perception of the implementation of training programs within the Ministry of Health of the Republic of Indonesia. In general, respondents assessed that the training provided had supported the improvement of competence and ability to carry out work.

The indicators with the highest average scores were found in the statements "The training materials I attended were in accordance with my job needs" and "The organization encourages employees to take job-relevant training", each obtained an average score of 4.01. These findings show that the training materials provided are considered relevant to the demands of the job and the organization is committed to encouraging employee competency development through various training programs. The indicator with the lowest average score is "Training resource persons have competencies in accordance with the material presented" with an average score of 3.86. Although still in the agree category, these results show that the quality of training resource persons still has room to be improved so that the delivery of material becomes more effective and able to provide a more optimal learning experience for participants.

Overall, the results of the descriptive analysis show that the implementation of the training program at the Ministry of Health of the Republic of Indonesia has gone well. Training is perceived to be able to improve the knowledge, skills, and competencies of employees so as to support the effectiveness of work implementation.

Knowledge Management

The *knowledge management variable* in this study illustrates the extent to which the knowledge management process has been implemented within the Ministry of Health of the Republic of Indonesia. Knowledge management includes the activities of creating, storing, sharing, and utilizing knowledge owned by organizations and employees to support the implementation of tasks and the achievement of organizational goals. The effective implementation of knowledge management is expected to be able to improve individual competencies, encourage innovation, accelerate work completion, and increase employee work effectiveness. Responses of *knowledge management variable* respondents.

Based on the results of the descriptive analysis of *the knowledge management variables*, an overall average score of 4.03 was obtained which was included in the agree category. These results show that respondents have a positive perception of the implementation of knowledge management in the Ministry of Health of the Republic of Indonesia. In general, respondents assessed that the knowledge management process had gone well, so that it was able to support the implementation of tasks and increase the effectiveness of employees' work.

The indicator with the highest average score is the statement "I can get the information I need to work easily" with an average score of 4.24, which falls into the category of strongly agree. These results show that access to information needed in the implementation of work is considered easy by most respondents. The indicator with the lowest average score is "Information storage system makes it easier for me to find the necessary documents" with an average score of 3.88. Although still in the Agree category, the results show that the information management and storage system still has room for improvement, especially in terms of ease of document search and speed of access to the necessary information.

Overall, the results of the descriptive analysis show that the implementation of *knowledge management* in the Ministry of Health of the Republic of Indonesia has been running well. The availability of information, a culture of knowledge sharing, the use of work experience, and organizational support for innovation are factors that support the effectiveness of work implementation. The better the knowledge management in the organization, the easier it will be for employees to obtain information, improve competence, and complete work effectively and efficiently.

Discipline

The *discipline variable* in this study was used to measure the level of discipline of employees in carrying out their duties and responsibilities within the Ministry of Health of the Republic of Indonesia. Work discipline reflects employees' compliance with organizational regulations, punctuality in work, responsibility in completing work, and consistency in complying with established work standards and procedures. A high level of discipline is expected to improve the quality of task implementation, productivity, and work effectiveness of employees.

Based on the results of the descriptive analysis of *the discipline variable*, an overall average score of 3.93 was obtained which was included in the agree category. These results show that respondents have a positive perception of the level of work discipline of employees at the Ministry of Health of the Republic of Indonesia. In general, employees have demonstrated compliance with organizational regulations, responsibility in carrying out duties, and commitment to work in accordance with applicable standards and regulations.

The indicators with the highest average score were the statements "I was on time according to the applicable working hours" and "I completed the work according to the specified time", each of which obtained an average score of 4.00 with the category of agree. These results show that most respondents have a good awareness of maintaining punctuality, both in attendance and in the completion of work. Punctuality is one of the important aspects that reflects work discipline and contributes to the smooth implementation of organizational

tasks. The indicator with the lowest average score was "I follow the organization's directions and policies" with an average score of 3.77, followed by the indicator "I comply with the applicable working hours conditions" of 3.87. Although both indicators are still in the agree category, these results show that there is still room to improve employee compliance with organizational policies and consistency in complying with applicable working hours regulations.

Overall, the results of the descriptive analysis show that the level of employee discipline at the Ministry of Health of the Republic of Indonesia has been in the good category. Compliance with regulations, responsibility at work, punctuality, and commitment to completing tasks are indicators that support the creation of a productive work environment. Employees who have high discipline tend to be able to carry out their duties more effectively, efficiently, and in accordance with organizational goals.

Work Environment

Work environment is a moderation variable in this study that describes the conditions of the work environment felt by employees in carrying out their duties and responsibilities. The work environment includes not only physical aspects, such as workplace facilities and comfort, but also non-physical aspects, such as relationships with superiors and co-workers, communication, and organizational support. A conducive work environment is believed to create a comfortable work atmosphere, increase motivation, and support the effectiveness of employees in achieving organizational goals.

Based on the results of the descriptive analysis of the *work environment variables*, it was shown that the overall average score was 3.86, which was included in the agree category. These results indicate that respondents gave a positive assessment of the conditions of the work environment at the Ministry of Health of the Republic of Indonesia. The perceived work environment has supported the implementation of work, both in terms of leadership, relationships between employees, communication, the availability of work facilities, and organizational support.

The indicator with the highest average score is "Supervisor gives clear direction in the execution of work" with an average score of 3.94. These findings show that employees consider that their superiors have been able to provide clear direction regarding tasks, responsibilities, and work targets. Clear direction from the leadership is one of the important factors in creating a purposeful work environment so that employees can work more effectively and minimize errors in the implementation of tasks. Meanwhile, the indicator with the lowest average score, namely "I have a good working relationship with colleagues", obtained an average score of 3.81 and the indicator "My colleagues support the creation of good cooperation" obtained an average score of 3.80. However, both indicators remain in the Agree category, so it can be interpreted that interpersonal relationships and cooperation between employees have been well established. However, these results also show that there are still opportunities for organizations to strengthen a culture of collaboration, improve communication across units, and encourage more effective teamwork.

Overall, the results of the descriptive analysis show that the work environment at the Ministry of Health of the Republic of Indonesia has been positively perceived by employees. This condition is reflected in the existence of leadership that provides clear directions, the availability of adequate work facilities, effective communication, good organizational support, and a comfortable work atmosphere.

Employee Effectiveness

Employee effectiveness is a dependent variable in this study that describes the level of success of employees in carrying out their duties and responsibilities effectively in accordance with organizational goals. Employee work effectiveness reflects the individual's ability to complete work with good quality, on time, efficiently, and able to adapt to the demands and

changes in the work environment. In the context of public sector organizations, especially in the Ministry of Health of the Republic of Indonesia, employee effectiveness is a very important factor in supporting the achievement of organizational strategic goals and improving the quality of services to the community.

Based on the results of the descriptive analysis of *the employee effectiveness* variable, it shows an overall average score of 4.15 which is included in the agree category. These results show that employees of the Ministry of Health of the Republic of Indonesia have a high level of work effectiveness. In general, respondents assessed that they were able to carry out work in accordance with organizational standards, achieve set targets, utilize resources effectively, and make a positive contribution to the achievement of organizational goals.

The indicator with the highest average score was "My work results are in accordance with the standards set by the organization" with an average score of 4.42, which falls into the category of Strongly Agree. These results show that most employees are able to produce work that meets the quality standards set by the organization. The findings reflect that employees have a good understanding of work procedures and operational standards so that they are able to produce quality performance. Meanwhile, the indicator with the lowest average score of "I completed work on time" obtained an average score of 4.05, while the indicator "I was able to meet the deadlines set by the organization" obtained an average score of 4.00, which is the lowest average score compared to other indicators. However, both indicators are still in the agree category, which shows that most employees have been able to complete work within the stipulated time. These results indicate that the timeliness aspect can still be improved through workload management, work prioritization, and optimization of work processes so that task completion becomes more efficient.

Overall, the results of the descriptive analysis show that the level of *employee effectiveness* of employees of the Ministry of Health of the Republic of Indonesia is in the high category. This is reflected in the ability of employees to produce quality work, meet organizational standards, complete work effectively, utilize technology, adapt to change, and contribute to achieving organizational goals.

Data Quality Testing (*Outer Model*)

Evaluation of *the outer model* was carried out to assess the reliability and validity of the indicators that formed latent constructs. *Outer* models with reflective indicators were evaluated through conconfirmatory factor analysis by testing *convergent validity* and *discriminant validity*.

Validity Test

The validity or validity of an instrument is a measure of how accurately the instrument is able to produce data according to the actual size to be measured. For validity testing, this study uses *construct validity* which is divided into two, namely convergent and discriminatory.

Convergent validity aims to test the correlation between items/indicators to measure constructs. In other words, the convergent validity wants to confirm the construct measurement. The validity test of *the convergent validity* of reflective indicators with the SmartPLS program can be seen from the *loading factor* and *average variance extracted (AVE)*. Ideally, a valid indicator is an indicator that has a *loading factor* value above 0.70 and AVE above 0.5.

It is known that the value of *the loading* indicator or the *construct loading factor* of each variable. It is known that all indicators have a *loading factor* value above 0.7 and AVE above 0.5. It can be interpreted that all indicators of each variable meet the required criteria. This shows that the indicator has a strong representation of latent constructs.

Another method to measure the validity of an item is by discriminant test. The validity of the discriminator was assessed based on *the cross loading* construct. If the correlation of the construct with *the measurement item* is greater than that of any other construct size, then it will show that the latent construct predicts the size on a block better than the size of the other block.

It can be seen that the indicators in each construct show a higher correlation to its construct compared to the other constructs, thus meeting the requirements of discriminant validity. This shows that the indicator is the exact measure of the variable being measured.

In addition to *cross loading*, the method that can also be used to assess *discriminant validity* is to look at the *Heterotrait-monotrait ratio (HTMT)* and *Fornell-Larcker* values which are done by comparing the *square roots* of AVE with the latent vertical correlation. The validity of the discriminant is said to be good if the value of the HTMT value is less than 0.9 and the *square root* of the AVE along the diagonal line is greater the correlation between one construct and another.

It can be seen that the greatest HTMT value is $0.698 < 0.9$ and *Fornell-Larcker* along the diagonal line there is a smaller correlation between one construct and another, so it can be seen that the construct has a good degree of validity. These results reflect the strength of the relationship between the construct and its own indicators very well.

Reliability Test

The reliability of a measurement indicates the stability and consistency of the instrument that measures a concept and is useful for testing the merits of the measurement. An instrument is said to have a good confidence level if *Cronbach's alpha* and *composite reliability* are greater than 0.7.

It is known that all values of *Cronbach's alpha* and *composite reliability* variables construct the research variables above 0.70. This explains that all construct variables meet the reliability requirements. The high reliability value indicates the internal consistency of the instrument in measuring the research construct.

Structural Model Testing (Inner Model)

After the measurement model (*outer model*) is declared to meet the criteria of validity and reliability, the next stage is to evaluate the *inner model* or structural model. The *internal model evaluation* aims to assess the ability of the research model to explain the relationship between latent variables according to the hypothesis that has been formulated. Through this evaluation, it can be known to what extent exogenous variables are able to explain the variation of endogenous variables as well as the strength of structural relationships formed in the research model.

Hypothesis Test (T Test)

To determine the *structural* relationship between latent variables, a hypothesis test was carried out on the path coefficient between variables by comparing the *p-value* with *alpha* (0.05) or with *t-statistics* with *t* table (1.96). The magnitude of *p-value* and *t-statistic* was obtained from the *output* on SmartPLS using the *bootstrapping method*.

The Effect of Training on Employee Effectiveness

The first hypothesis (H1) states that *training* has a positive effect on *employee effectiveness*. The test results obtained an *original sample* value (β) of 0.347, *T Statistics* of 8.821, and *P-values* of 0.000. A *Statistical T-value* greater than 1.96 and a *P-value* smaller than 0.05 indicate that the first hypothesis is accepted. The positive path coefficient shows that the better the implementation of the training program, the higher the level of employee work effectiveness.

Pengaruh Knowledge Management terhadap Employee Effectiveness

The second hypothesis (H2) states that *knowledge management* has a positive effect on *employee effectiveness*. The test results showed an *original sample* value (β) of 0.199, *T Statistics* of 4.578, and *P-values* of 0.000. A *Statistical T-value* greater than 1.96 and a *P-value* smaller than 0.05 indicate that the second hypothesis is accepted. The positive path coefficient shows that it shows that the better the implementation of *knowledge management*, the higher the effectiveness of employee work.

The Influence of Discipline on Employee Effectiveness

The third hypothesis (H3) states that *discipline* has a positive effect on *employee effectiveness*. Based on the test results, the *original sample* value (β) was 0.175, T Statistics was 5.047, and P-values were 0.000. Statistical *T-values* greater than 1.96 and *P-values* smaller than 0.05 indicate that the third hypothesis is accepted. The path coefficient with a positive value shows that the higher the level of employee discipline, the higher the work effectiveness produced.

The Role of Work Environment in Moderating the Influence of Training on Employee Effectiveness

The fourth hypothesis states that *the work environment* moderates the effect of *training* on *employee effectiveness*. The test results showed an *original sample* value (β) of 0.177, T Statistics of 2.832, and P-values of 0.005. A Statistical *T-value* greater than 1.96 and a *P-value* smaller than 0.05 indicate that the fourth hypothesis is accepted. The positive moderation coefficient shows that the *work environment* strengthens the influence of *training* on *employee effectiveness*.

The Role of Work Environment in Moderating the Influence of Knowledge Management on Employee Effectiveness

The fifth hypothesis states that *the work environment* moderates the influence of *knowledge management* on *employee effectiveness*. Based on the test results, the *original sample* value (β) was 0.172, T Statistics was 4.440, and P-values were 0.000. A Statistical *T-value* greater than 1.96 and a *P-value* smaller than 0.05 indicate that the fifth hypothesis is accepted. The moderation coefficient with a positive value indicates that a conducive work environment strengthens the relationship between *knowledge management* and *employee effectiveness*.

The Role of Work Environment in Moderating the Influence of Discipline on Employee Effectiveness

The sixth hypothesis states that *the work environment* moderates the influence of *discipline* on *employee effectiveness*. The test results showed an *original sample* value (β) of 0.140, T Statistics of 3.902, and P-values of 0.000. Statistical *T-values* greater than 1.96 and *P-values* smaller than 0.05 indicate that the sixth hypothesis is accepted. A positive moderation coefficient shows that the *work environment* is able to strengthen the influence of *discipline* on *employee effectiveness*.

Uji Predictive Relevance (Q^2)

The *Predictive Relevance (Q^2) test* is used to measure the model's predictive ability against endogenous variables. According to Hair et al. (2022), a Q^2 value greater than zero ($Q^2 > 0$) indicates that the model has good predictive relevance, while a Q^2 value ≤ 0 indicates that the model lacks predictive capabilities.

Table 1 Test Results Predictive Relevance (Q^2)

Variable endogenous	Q^2 Predict
Employee Effectiveness	0.725

Source: Data Processing Results, 2026

Based on Table 4.16, it is known that the *Q^2 Predict* value is 0.725. The value is greater than zero ($Q^2 > 0$), so it can be concluded that the research model has good predictive capabilities. In other words, the model has a strong level of predictive relevance in explaining the phenomenon of *employee effectiveness* in the Ministry of Health of the Republic of Indonesia.

Uji Effect Size (f^2)

The *Effect Size* (f^2) test was used to measure the magnitude of the contribution of each exogenous variable to the endogenous variable in the research model. According to Cohen (1988), the f^2 value of 0.02 indicates a small *effect*, 0.15 indicates a medium effect, and 0.35 indicates a large *effect*.

The *training* variable has an F^2 value of 0.274, so it is included in the medium effect category. This value shows that *training* makes a considerable contribution to increasing *employee effectiveness*. Compared to other independent variables, *training* is the variable that has the largest effect size in the research model.

The *variables of knowledge management* and *discipline* obtained F^2 values of 0.076 and 0.074 which are included in the category of *small effect*. This shows that *knowledge management* and *discipline* still contribute to increasing *employee effectiveness*, even though the magnitude of the influence is relatively small. Good knowledge management through the process of creating, storing, sharing, and utilizing knowledge remains a supporting factor in increasing the effectiveness of employee work. Then discipline remains an important factor because it encourages employees to comply with regulations, carry out tasks according to procedures, and complete work responsibly.

For the moderation variable, the interaction of *the work environment* with *training*, *knowledge management*, and *discipline* obtained F^2 values of 0.057, 0.060, and 0.051, respectively. These three values are included in the category of *small effects*. These results show that *the work environment* is able to strengthen the relationship between *training*, *knowledge management*, and *discipline* to *employee effectiveness*, although the amount of moderation contribution provided is still relatively small.

The Effect of Training on Employee Effectiveness

Based on the results of the descriptive analysis, *the training* variable obtained an average score of 3.95 which was included in the agree category. These results show that most employees at the Ministry of Health of the Republic of Indonesia have a positive perception of the implementation of training organized by the organization. Respondents assessed that the training material was in accordance with the needs of the job, the opportunity to participate in training was given periodically, the method of delivering the material was easy to understand, the resource persons had adequate competence, and the training results could be applied in the implementation of daily tasks. In addition, employees also feel that training is able to improve work skills, expand competencies, and provide real benefits in supporting work completion. The high assessment of respondents on *the training* variable indicates that the organization has implemented the human resource development program quite well. Training not only functions as a means of increasing knowledge and skills, but also as a medium to update employee competencies to be able to adapt to technological developments, regulatory changes, and increasingly complex public service demands. Thus, the better the quality of training that employees receive, the greater the chance of creating optimal work effectiveness.

Thus, the results of this study show that the better the implementation of the training program at the Ministry of Health of the Republic of Indonesia, the higher the *employee effectiveness level*. Therefore, organizations need to maintain and even improve the quality of training through the preparation of materials that are in accordance with job needs, the use of interactive learning methods, the selection of competent resource persons, the provision of equal training opportunities, and the evaluation of the implementation of training results in the work environment. These efforts are expected to be able to improve employee competencies in a sustainable manner so that organizational goals can be achieved more effectively and efficiently.

Pengaruh *Knowledge Management* terhadap *Employee Effectiveness*

Based on the results of the descriptive analysis, *the knowledge management variable* obtained an average score of 4.03 which was included in the agree category. These results show that employees of the Ministry of Health of the Republic of Indonesia have a positive perception of the implementation of *knowledge management* in the work environment. In general, respondents assessed that the information needed to carry out the work could be obtained easily and available when needed. These results show that the organization has provided adequate access to information so that it is able to support the effective implementation of employee duties. In addition to easy access to information, respondents also assessed that the culture of knowledge sharing, document storage, the use of work experience, and the organization's encouragement for innovation had gone well. This condition reflects that the organization does not only focus on information management, but also encourages the creation of a joint learning process through the exchange of experience and knowledge between employees. The implementation of *good knowledge management* allows employees to get solutions to various work problems faster, reduce errors in the implementation of tasks, improve the quality of decision-making, and create innovations that support increasing organizational effectiveness.

Based on the results of the study, it can be understood that the effective implementation of *knowledge management* at the Ministry of Health of the Republic of Indonesia has made a real contribution to increasing *employee effectiveness*. Therefore, organizations need to continue to strengthen the culture of knowledge sharing, develop an integrated information management system, document best *practices*, and encourage employees to innovate and share work experience. These efforts are expected to improve the quality of decision-making, accelerate work completion, increase collaboration between employees, and ultimately support the achievement of organizational goals more effectively and sustainably.

The Influence of *Discipline* on *Employee Effectiveness*

Based on the results of the descriptive analysis, *the discipline variable* obtained an average score of 3.93 which was included in the agree category. These results show that employees of the Ministry of Health of the Republic of Indonesia have a good level of work discipline in carrying out their duties and responsibilities. In general, respondents assessed that they had complied with organizational regulations, carried out work according to operational standards, were present on time, completed work according to the set targets, and were responsible for the results of the work done. Overall, the descriptive results indicate that work discipline has been well implemented by employees. A high level of discipline reflects compliance with the rules, commitment to task completion, and responsibility in carrying out the work. This condition is an important capital in increasing the effectiveness of employee work because work can be completed according to procedures, on time, and produce quality work in accordance with organizational standards.

Based on the results of the study, it can be understood that *discipline* has a positive contribution to increasing *employee effectiveness* in the Ministry of Health of the Republic of Indonesia. Therefore, organizations need to continue to strengthen the culture of discipline through consistent enforcement of regulations, socialization of organizational policies, coaching work behavior, setting an example by leaders, and implementing an objective performance evaluation and reward system. These efforts are expected to be able to increase employee compliance, responsibility, and professionalism so that the effectiveness of individual and organizational work can continue to be improved.

The Effect of *Work Environment Moderation* on the Relationship of *Training* on *Employee Effectiveness*

The results of the hypothesis test showed that the interaction of *training* with *the work environment* had a positive and significant effect on *employee effectiveness*, with an *original sample* value of 0.177, *T Statistics* of 2.832, and *P Values* by 0.005. This value shows that the

work environment is able to strengthen the influence of training on employee effectiveness. Thus, the hypothesis that the *work environment* moderates the effect of *training* on *employee effectiveness* is accepted. These results show that training will provide greater benefits when supported by a conducive work environment. The knowledge and skills gained through training will be easier to apply if employees have the support of the leadership, adequate work facilities, effective communication, and a work culture that encourages learning. On the other hand, if the work environment is less supportive, the benefits of the training that the organization has provided cannot be implemented optimally.

These findings are in line with research by Andini and Setiawan (2022) which shows that training and the work environment together are able to improve employee performance. Research by Lailly, Sundjoto, and Rahayu (2023) also proves that a conducive work environment strengthens the effectiveness of training in increasing employee productivity. The results of this study are further strengthened by Karunia et al. (2023) who found that the work environment supports the success of human resource development through training so that it has an impact on improving employee performance. In addition, Alkaf, Yunus, and Ady (2024) explained that training will have a greater impact on performance if supported by a good work environment.

Training basically results in an increase in knowledge, skills, and employability. However, the benefits of the training will not fully impact if employees work in a less supportive environment. On the other hand, when an organization provides a comfortable work environment, open communication, leadership support, adequate work facilities, and appreciation for employees, the competencies gained through training will be easier to apply in daily work. Thus, *the work environment* magnifies the positive influence of *training* on *employee effectiveness*, so that training becomes more effective in improving the quality of job completion.

The Effect of Work Environment Moderation on the Relationship of Knowledge Management to Employee Effectiveness

The test results showed that the interaction of *knowledge management* with *the work environment* had a positive and significant influence on *employee effectiveness*, with an *original sample* value of 0.172, a *T Statistics* of 4.440, and a *P Value* of 0.000. Thus, the hypothesis that the *work environment* moderates the influence of *knowledge management* on *employee effectiveness* is accepted. These results show that the implementation of knowledge management will have a greater impact on employee effectiveness if supported by a conducive work environment. A work environment that encourages open communication, collaboration, shared experiences, and trust between employees will simplify the process of creating, storing, and transferring knowledge. On the other hand, if the work environment is not conducive to collaboration, the use of organizational knowledge becomes less optimal so that its contribution to work effectiveness will also decrease.

This finding is in line with the research of Haryanto and Nabila (2025) which shows that knowledge management and work environment together improve employee performance. The results of this study are also supported by Kianto et al. (2022) who explain that the success of knowledge management is greatly influenced by the organizational culture and work environment that supports the knowledge sharing process. In addition, Robbins and Judge (2022) explain that a conducive organizational environment will improve collaborative behavior, communication, and organizational learning so that employee effectiveness can increase sustainably.

The knowledge stored in an organization will not provide optimal benefits if it is not supported by a work environment that encourages communication, collaboration, and sharing of experiences. On the other hand, when the work environment provides opportunities for employees to discuss, exchange information, and work together, the process of creating,

disseminating, and utilizing knowledge becomes more effective. This condition causes knowledge management to have a greater impact on increasing employee work effectiveness. Therefore, *the work environment* has been proven to strengthen the positive relationship between *knowledge management* and *employee effectiveness*.

The Effect of Work Environment Moderation on the Relationship of Discipline to Employee Effectiveness

The results of the hypothesis test showed that the interaction of *discipline* with *the work environment* had a positive and significant effect on *employee effectiveness*, which was shown by the *original sample* value of 0.140, *T Statistics* of 3.902, and *P Values* of 0.000. Thus, the hypothesis that the *work environment* moderates the influence of *discipline* on *employee effectiveness* is accepted. These results show that work discipline will result in higher effectiveness if employees work in a supportive environment. Disciplined employees will find it easier to maintain performance if they get clear direction from the leadership, have harmonious working relationships, are supported by adequate facilities, and work in a comfortable atmosphere. A positive work environment creates conditions that allow disciplined behavior to develop consistently resulting in higher work effectiveness.

These findings are in line with research by Astuti and Rahardjo (2021) which proves that work discipline and the work environment simultaneously improve employee performance. Research by Putra and Santika (2024) also shows that work discipline and work environment have a positive influence on employee performance. In addition, Alkaf, Yunus, and Ady (2024) found that a conducive work environment strengthens the role of work discipline in improving employee performance. These findings are supported by Bakker and Demerouti (2023) through the Job Demands–Resources Model, which explains that the work environment as an organizational resource (job resources) is able to increase work motivation, support positive employee behavior, and optimize the contribution of various individual factors to increasing work effectiveness.

Work discipline will result in higher effectiveness if employees work in a supportive environment. Employees who have high discipline do tend to obey the rules, work according to procedures, and complete tasks on time. However, work effectiveness will increase more optimally when the disciplined behavior is supported by a work environment that provides clear directions, good communication, harmonious working relationships, and adequate facilities. Thus, *the work environment* magnifies the positive influence of *discipline* on *employee effectiveness*, so that employee discipline behavior can be realized into more effective work results.

CONCLUSION

Based on the research findings and hypothesis testing results, it can be concluded that training, knowledge management, and work discipline had positive and significant effects on employee effectiveness at the Ministry of Health of the Republic of Indonesia. Training contributed to improving employee effectiveness by enhancing competencies, knowledge, and skills relevant to job requirements. Knowledge management also played an important role, as the availability, sharing, and utilization of organizational knowledge enabled employees to complete tasks more efficiently and make better decisions. Furthermore, work discipline improved employee effectiveness through employees' compliance with organizational regulations, responsibility, punctuality, and consistency in task completion. The findings also confirmed that the work environment served as a significant moderating variable that strengthened the relationships between training, knowledge management, work discipline, and employee effectiveness. A supportive work environment characterized by effective communication, leadership support, adequate facilities, and collaborative relationships enabled

employees to optimally apply training outcomes, utilize organizational knowledge, and maintain disciplined work behaviors, thereby improving overall work effectiveness.

Future research is recommended to expand the research model by incorporating additional organizational and individual factors that may influence employee effectiveness, such as leadership style, organizational culture, employee engagement, digital competency, psychological capital, and motivation. Further studies may also employ longitudinal research designs to examine changes in employee effectiveness over time, particularly in response to organizational transformation and technological developments in the public sector. In addition, comparative studies involving different government institutions or private organizations are suggested to determine whether the effects of training, knowledge management, work discipline, and work environment vary across organizational contexts. Future researchers are also encouraged to apply mixed-method approaches by combining quantitative analysis with qualitative methods, such as interviews and observations, to gain deeper insights into how employees experience and implement training programs, knowledge management practices, and workplace conditions in improving organizational effectiveness.

REFERENCES

- Al Wali, J., Muthuveloo, R., Teoh, A. P., & Al Wali, W. (2023). Disentangling the relationship between employees' dynamic capabilities, innovative work behavior and job performance in public hospitals. *International Journal of Innovation Science*, 15(2), 368–384. <https://doi.org/10.1108/IJIS-01-2022-0012>
- Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of Managerial Psychology*, 22(3), 309–328.
- Cavalcanti, D. R., Oliveira, T., & de Oliveira Santini, F. (2022). Drivers of digital transformation adoption: A weight and meta-analysis. *Heliyon*, 8(2), Article e08911. <https://doi.org/10.1016/j.heliyon.2022.e08911>
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86(3), 499–512.
- Dewah, P., & Mutula, S. M. (2016). Knowledge retention strategies in public sector organizations: Current status in Sub-Saharan Africa. *Information Development*, 32(3), 362–376.
- Hasibuan, M. S. P. (2019). *Human resource management*. The Earth of Scripts.
- Ingsih, K., Astuti, S. D., & Riyanto, F. (2024). The role of digital competence in improving service quality and employee performance. *SA Journal of Human Resource Management*, 22, Article a2689. <https://doi.org/10.4102/sajhrm.v22i0.2689>
- Itang. (2015). Work discipline and work competence with quality of service in the Office of Religious Affairs (KUA) District of Mount Kencana, Lebak Regency, Banten. *Journal of Management & Sustainability*, 5, 132.
- Janus, S. S. (2016). *Becoming a knowledge-sharing organization: A handbook for scaling up solutions through knowledge capturing and sharing*. World Bank Publications.
- Jeilani, A., & Hussein, A. (2025). Impact of digital health technologies adoption on healthcare workers' performance and workload: Perspective with DOI and TOE models. *BMC Health Services Research*, 25(1), Article 271. <https://doi.org/10.1186/s12913-025-12414-4>
- Kayode, A., & Saleh, H. (2025). Discipline and disciplinary procedures and effective service delivery in Nigeria's public service. In *International*.
- McDermott, A. M., et al. (2015). Hybrid healthcare governance for improvement? Combining top-down and bottom-up approaches to public sector regulation. *Public Administration*, 93(2), 324–344.
- McNabb, D. E. (2015). *Knowledge management in the public sector: A blueprint for innovation*

- in government*. Routledge.
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), 14–37.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company*. Oxford University Press.
- Nöhammer, E., & Drexel, M. (2024). The potentials of digital workplace health promotion. *International Journal of Environmental Research and Public Health*, 21(7), Article 902. <https://doi.org/10.3390/ijerph21070902>
- World Health Organization. (2015). *People-centred and integrated health services: An overview of the evidence: Interim report*. World Health Organization.
- World Health Organization. (2018). *Building the primary health care workforce of the 21st century*. World Health Organization.
- World Health Organization. (2022). *Health systems resilience toolkit: A WHO global public health good to support building and strengthening of sustainable health systems resilience in countries with various contexts*. World Health Organization.
- Phaladi, M. (2024). Key organisational barriers to effective knowledge risk management in South African public sector enterprises. *Intangible Capital*, 20(3), 447–463.
- Robbins, S. P., & Judge, T. A. (2019). *Organizational behavior*. Pearson.
- Sugiyono. (2016). *Quantitative, qualitative, and R&D research methods*. Alfabeta.