

The Effect of Training and Education Programs on Developing Hospital Employees' Competency at the Inpatient Uni

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Abstract

Purpose: Human resources are critical determinants of hospital service quality, particularly in inpatient units that require continuous care, clinical accuracy, and effective coordination. Competency gaps may arise from rapid technological changes, evolving service standards, and limited structured training, negatively affecting performance, service quality, and patient satisfaction. This study analyzes the influence of training and education on employee competency development in the inpatient unit of RS Bintang Amin Bandar Lampung, grounded in Human Capital Theory, with training and education as independent variables and competence as the dependent variable.

Methodology/approach: A quantitative design was employed, with questionnaires distributed to 100 inpatient employees selected using accidental sampling method. Data were analyzed using multiple linear regression, supported by validity and reliability testing, and partial (t-test) and simultaneous (F-test) hypothesis testing.

Results: Training and education have positive and significant effects on employee competence, both individually and simultaneously.

Conclusions: Structured and continuous training and education programs are essential investments for enhancing competence and improving inpatient service quality.

Limitations: The study is limited to a single hospital inpatient unit and uses non-probability sampling, which restricts generalizability, although it offers empirical support for the importance of continuous training.

Contributions: This study reinforces the application of Human Capital Theory in healthcare and provides practical guidance for hospital human resource development strategies.

Keywords: *Education, Employee Competences, Hospital Inpatient Unit, Training*

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1. Introduction

Hospitals operate as complex service organizations, and the quality of healthcare delivery depends heavily on the competence of their human resources. Unlike manufacturing sectors that rely primarily on automation, hospitals require intensive human interaction, professional judgment, and interdisciplinary collaboration among healthcare workers to provide quality care. The effectiveness of

hospital services, particularly in inpatient care units, is closely linked to employees' competencies, including their knowledge, technical skills, professional attitudes, and adaptive work behaviors. Consequently, the development of human resources through systematic training and education has become a strategic priority in healthcare management ([WeiBo, Kaur, & Jun, 2010](#)).

Inpatient units are among the most critical components of hospital services, as they involve continuous patient care, complex clinical procedures, and high demand for accuracy and coordination. However, many hospitals continue to experience competency gaps among their inpatient staff. These gaps often arise from rapid technological developments, evolving healthcare standards, limited access to structured training programs, and insufficient opportunities for continuous education ([Isah Leontes & Hoole, 2024](#); [Otoo, 2024](#)). When employee competencies do not align with organizational standards, the consequences may include decreased service quality, reduced work efficiency, increased patient complaints, and suboptimal organizational performance ([Di Lauro, Tursunbayeva, Antonelli, & Moschera, 2023](#)).

Human Capital Theory provides a strong theoretical foundation for understanding the importance of training and education in organizational development. [Congna and Saad \(2025\)](#) conceptualizes training and education as long-term investments that enhance individual productivity and generate positive returns for organizations. In this framework, training focuses on improving job-specific skills and work behaviors, whereas education contributes to broader cognitive development, professional reasoning, and adaptability to future challenges ([Armstrong & Landers, 2018](#)). For healthcare organizations, this perspective underscores the necessity of continuous competency development to ensure service quality and patient safety in the future.

Empirical evidence supports the significant role of training and education in improving employee competence in hospital settings. Previous studies have indicated that structured training programs positively influence technical competence, communication skills, and teamwork among healthcare workers ([Almarwani & Alzahrani, 2023](#); [Markaki, Malhotra, Billings, & Theus, 2021](#)). Education, both formal and informal, has also been shown to enhance professional attitudes, clinical knowledge, and service effectiveness in inpatient units ([Astuti, Hayati, & Suparti, 2020](#); [Daniali et al., 2022](#)). Furthermore, recent international research highlights that educational interventions significantly improve digital competence and adaptability among healthcare professionals, which are increasingly essential in modern hospital settings ([Longhini, Rossetini, & Palese, 2022](#)).

Empirical evidence from the last five years consistently shows that training and education improve employee performance mainly by strengthening employee competency rather than through direct effects alone. Across diverse organizational settings such as government agencies, healthcare institutions, and private companies training and educational attainment enhance employees' skills, knowledge, and professional capabilities, which, in turn, lead to higher performance and service quality ([Santoso, Naim, Suroso, Hayudini, & Shrestha, 2023](#)). Several studies have confirmed that competency functions as a crucial mediating variable, indicating that training programs are most effective when they successfully translate into measurable competencies ([Ingsih, Riskawati, Prayitno, & Ali, 2021](#)). Moreover, the impact of training, education, and competency on performance is often reinforced by motivational and attitudinal factors, including job satisfaction and work motivation, which further amplify the performance outcomes ([Haryanto, Wibisono, Catrayasa, Ngaliman, & Indrawan, 2023](#); [Surya et al., 2024](#)). Collectively, these findings support the human capital perspective, emphasizing that competency-based training and education, supported by motivational mechanisms, are essential for achieving sustainable employee performance improvements.

At Bintang Amin Hospital in Bandar Lampung, various training and educational programs have been implemented to improve the performance of employees. Nevertheless, preliminary observations suggest that competency gaps among inpatient unit employees may persist, potentially affecting service quality and patient satisfaction. This indicates that existing training and education initiatives may not yet be optimally aligned with actual competency needs, highlighting the importance of empirical evaluation.

Therefore, this study aims to analyze the influence of training and education on the development of employee competencies in the inpatient unit of RS Bintang Amin Bandar Lampung. Specifically, this study examines the individual and simultaneous effects of training and education on employee competence. This study seeks to contribute empirical evidence to the human capital literature in the healthcare sector and provide practical recommendations for hospital management in designing effective, structured, and sustainable human resource development strategies to improve service quality in inpatient care units.

2. Literature Review and Hypotheses Development

2.1 Human Capital and Employee Competence

Human Capital Theory posits that investing in employees' knowledge, skills, and abilities is fundamental to enhancing individual performance and long-term organizational outcomes. [Congna and Saad \(2025\)](#) argued that education and training create intangible assets human capital that increase productivity and organizational value. In hospital settings, this concept is particularly relevant because healthcare delivery is labor-intensive and requires continuous skill development to maintain high-quality service and patient safety.

Human capital theory's view employee competence as a form of organizational capital developed through systematic investment in education and training. Human Capital Theory argues that education and training increase individuals' knowledge, skills, and abilities, thereby enhancing productivity and organizational outcomes ([Congna & Saad, 2025](#)). In contemporary organizations, particularly healthcare settings, employee competence is a crucial form of human capital that determines service quality, patient safety, and operational effectiveness.

Extending this perspective, the Resource-Based View (RBV) emphasizes that human resources can provide a sustainable competitive advantage when they are valuable, rare, inimitable, and non-substitutable ([Barney, 1991](#)). Competent employees meet these criteria because their expertise and professional judgment cannot easily be replicated. Recent studies have confirmed that investments in training and education strengthen employee competence and position it as a strategic organizational resource ([Bos-Nehles, Townsend, Cafferkey, & Trullen, 2023](#)).

Furthermore, Strategic Human Capital Theory highlights that not all competencies contribute equally to a firm's performance. Competence generates the greatest value when it aligns with the organizational goals and service demands. Empirical evidence from the last five years shows that strategically aligned competence significantly improves organizational performance, especially in knowledge-intensive sectors such as healthcare and public service ([Garavan, Carbery, & Rock, 2012](#)).

[Kareem and Hussein \(2019\)](#) found that education and training positively influence employee performance through competence and motivation, demonstrating a human capital process where investment in skills leads to better organizational outcomes.

Competence is defined as a combination of knowledge, technical skills, professional attitudes, and adaptive behaviors required to effectively fulfill job responsibilities. In empirical research across organizational contexts, competence has been linked to improved performance. Competence significantly influences key outcomes, including performance and quality measures. A study on employee performance at the Bandar Lampung Middle Tax Service Office shows that motivational and cultural factors influence performance through their relationships with employee competence and behavior, highlighting the centrality of competence to organizational outcomes.

2.2 Training and Competence

Training refers to structured programs designed to develop employees' job-specific skills and behavior. According to [Armstrong and Landers \(2018\)](#), training is designed to close performance gaps by enhancing the abilities required for effective job performance. In hospitals, training often focuses on clinical procedures, patient safety protocols, and interpersonal communication—areas that directly influence service delivery in inpatient units. Empirical evidence consistently indicates that training

positively impacts employee competence and performance. [Barton, Bruce, and Schreiber \(2018\)](#) found that well-designed training enhances clinical skills and team performance among hospital staff, while [Almarwani and Alzahrani \(2023\)](#) reported that clinical training reduced competency gaps among new employees in healthcare settings.

Expectancy Theory suggests that training increases employees' competence, thereby strengthening performance expectations. Empirically, [Feryanto, Mulyanti, and Soma \(2025\)](#) found that competence fully mediates the effect of training on performance. The empirical evidence by Jaya et al. consistently indicates that training positively impacts employee competence and education contributes to broader capacities for problem-solving ([Jaya, Yustianto, Septiani, & Suntami, 2024](#); [Putra, Sriyonob, & Setiyono, 2025](#)).

[Tabrani, Satriawan, and Indrawan \(2024\)](#) demonstrate that education and training significantly enhance employee performance when they can build competencies and stimulate work motivation, highlighting motivation as an important intervening mechanism. That training and work experience do not directly improve performance unless they are transformed into concrete competencies ([Feryanto et al., 2025](#)). Similar conclusions were reported by [Santoso et al. \(2023\)](#), who identified competence as the strongest determinant of employee performance, ahead of training and motivation, and emphasized that skill mastery is central to performance outcomes. In the public health sector, [Indra, Wibisono, and Indrawan \(2024\)](#) show that education level and competence contribute to performance primarily by increasing motivation, reinforcing the idea human capital developments must to be accompany psychological apreparednes.

Several complementary learning and development theories explain the relationship between training and employee competence. The Competency-Based Human Resource Development (CB-HRD) approach emphasizes that training programs should be designed around clearly defined competency standards rather than generic skill acquisition. Recent empirical studies have demonstrated that competency-based training has a significant positive effect on employee competence and work readiness ([Garavan et al., 2012](#); [Santoso et al., 2023](#)).

Moreover, local research on related organizational environments supports this relationship. Studies involving public-sector employees in Lampung have shown that structured development programs, such as training and organizational support, improve competency and performance outcomes. These findings suggest that training interventions can significantly enhance the competencies required for high-quality performance in demanding service environments such as inpatient hospital units. Based on these conceptual and empirical foundations:

H₁: Training positively and significantly affects employee competence in the inpatient unit

2.3 Education and Competence

Education encompasses formal and informal learning processes that develop employees' theoretical understanding, cognitive reasoning skills, and adaptability. Unlike training, which is task-focused, education contributes to broader problem-solving and professional judgment capacities. Education enhances employees' ability to respond to changing work demands and supports continuous professional growth.

Education contributes to employee competence by strengthening cognitive abilities, professional judgment and adaptive capacity. Adult Learning Theory (Andragogy) posits that adults learn most effectively when education is self-directed, problem-oriented, and relevant to their professional roles. Higher levels of formal education have been shown to enhance analytical thinking and professional competence, particularly in complex service organizations

In healthcare contexts, educational background and ongoing professional education are linked to higher competence and better service outcomes. For instance, studies have shown that ongoing educational activities strengthen staff knowledge and readiness to apply best practices in clinical settings ([Astuti et](#)

[al., 2020](#); [Daniali et al., 2022](#)). In addition to technical knowledge, education influences attitudes and cognitive frameworks that shape employee's interpretation and response to workplace challenges.

Experiential Learning Theory explains competence development as a cyclical process involving concrete experience, reflective observation, abstract conceptualization, and active experimentation ([Henríquez, Rabanal, & Abásolo, 2025](#)). Recent healthcare studies have confirmed that experiential learning methods, such as simulations, clinical practice, and case-based training, significantly enhance professional competence and decision-making abilities ([Kareem & Hussein, 2019](#)).

In addition, Social Learning Theory posits that individuals acquire competence by observing, interacting with, and imitating others. Empirical research in healthcare organizations shows that mentoring, teamwork, and peer learning substantially enhance employees' competence beyond formal training alone ([Karyono, Indradewa, & Syah, 2020](#)).

Closely related, the Situated Learning Theory argues that competence develops most effectively in authentic work contexts (Lave & Wenger, 1991). Recent findings indicate that workplace-based training embedded in real service environments improves skill application and learning transfer, thereby strengthening employee competence ([Longhini et al., 2022](#)).

Finally, the Transfer of Training Theory explains that training enhances competence only when newly acquired knowledge and skills are effectively applied in the workplace. Empirical studies conducted over the past five years highlight the importance of supervisory support, training relevance, and organizational climate in ensuring successful transfer and sustained competence development ([Raffoul, Bartlett-Esquillant, & Phillips Jr, 2019](#)).

Other studies have extended this relationship by incorporating organizational and attitudinal factors. [Haryanto et al. \(2023\)](#) revealed that education and training improve employee performance indirectly through job satisfaction, suggesting that employees perform better when development opportunities are perceived as fair and rewarding. Research published in JoMAPS [Surya et al. \(2024\)](#) that competency enhances performance through job satisfaction, particularly when supported by effective leadership and a conducive work environment. The study further shows that competence, when aligned with appropriate job placement, strengthens intrinsic motivation and leads to higher-performance levels. Study by [Gemina, Kartini, and Ramadanti \(2025\)](#) Education level and work environment positively affected motivation and performance, whereas competence had no direct effect.

[Surya et al. \(2024\)](#) expand the discussion by linking competence with professionalism and service quality, demonstrating that competency development also improves organizational outcomes beyond individual performance. Finally, broader HRM analyses in the Annals of Human Resource Management Research emphasize that training contributes to performance by simultaneously shaping competence, motivation, and discipline ([Rachman, 2022](#)). Taken together, these studies present a consistent narrative that training and education are effective performance drivers only when they are competency-based and supported by motivational and organizational mechanisms, firmly supporting the human capital and competency-based perspectives in human resource management.

Although work does not explicitly focus on healthcare education, her studies on employee performance in public service organizations underscore the importance of formal qualifications and capacity building in shaping competence and performance outcomes. Another study showed that human resource development through education improves competence and performance ([Jaya et al., 2024](#); [Putra et al., 2025](#)). Another study by [Prakarsa, Bangsawan, and Ms \(2023\)](#) found that knowledge and expertise contribute positively to professional effectiveness and relationship performance.

These findings parallel broader research, indicating that education contributes to employee effectiveness and professional expertise in complex work environments. Accordingly:

H₂: Education positively and significantly affects employee competence in inpatient units

3. Research Methodology

This study employed a quantitative explanatory design to examine the influence of training and education on employee competence in the inpatient unit of RS Bintang Amin Bandar Lampung. A quantitative approach was selected to test the hypotheses and measure the causal relationships between the variables using objective statistical analysis.

The explicit nomination of the research object and location is a fundamental requirement for ensuring methodological rigor in quantitative research. In this study, defining employees of the inpatient unit at Bintang Amin Hospital as the research object provides conceptual clarity regarding the population under investigation and the organizational context in which training, education, and employee competence were examined. Given that hospitals comprise heterogeneous service units with distinct operational characteristics and competency demands, specifying the inpatient unit ensures that the measurements are contextually relevant and aligned with actual job requirements. This precision enhances construct validity and supports the application of Human Capital Theory by situating training and education as concrete organizational investments within a real healthcare setting.

Moreover, identifying Bintang Amin Hospital as the research location strengthens internal validity by controlling for organizational and environmental variability. By focusing on a single institution, differences in management practices, training systems, and organizational culture are minimized, allowing for a more accurate estimation of the effects of training and education on employee competence. Clearly specifying the research location also provides a methodological basis for the chosen sampling technique, ensures ethical and operational feasibility, and delineates the boundaries of empirical generalization. The study produces findings that are methodologically robust, transparent in their limitations, and directly relevant to hospital management in designing effective human resource development strategies for inpatient care services.

The study population consisted of all employees working in the inpatient unit of RS Bintang Amin Bandar Lampung. The sample comprised 100 employees selected using accidental (non-probability) sampling based on respondents' accessibility and willingness at the time of data collection. This sampling technique was considered appropriate, given the operational constraints of the hospital environment.

Data were collected using a structured questionnaire developed based on relevant theoretical constructs and previous studies. The questionnaire measured three main variables: training, education, and employee competence (see Appendix). Responses were recorded on a Likert scale, enabling the quantification of respondents' perceptions regarding training participation, educational background, and competency development.

Prior to hypothesis testing, the research instrument underwent validity and reliability testing to ensure accurate and consistent measurements. Data were analyzed using multiple linear regression to assess the partial and simultaneous effects of training and education on employee competence. Hypotheses were tested using t-tests to evaluate partial effects and F-tests to examine simultaneous effects, with a predetermined significance level. Descriptive statistics and classical assumption tests supported the analysis, ensuring the robustness of our regression model.

4. Results and Discussion

4.1 Respondent Characteristics

The respondents of this study were employees working in the inpatient unit of RS Bintang Amin Bandar Lampung. A total of 100 respondents participated in this survey. The respondents represented various educational backgrounds, job positions, and lengths of service, reflecting the diversity of human resources in the inpatient units. This diversity provides a relevant basis for examining the effects of training and education on employee competence in the hospitality industry.

4.1.1 Respondent Characteristics Based on Gender

Table 1. Respondents Based on Gender

Gender	Amount	Percentage
Man	46	46%
Woman	54	54%
Amount	100	100 %

4.1.2 Respondent Characteristics Based on Education

Table 2. Respondents Based on Education

Education	Amount	Percentage
S1 (Bachelor)	64	64%
Diploma 3	27	27%
Senior High School	9	9%
Amount	100	100 %

4.1.3 Respondent Characteristics Based on Age

Table 3. Characteristics of Respondents Based on Age

Age	Amount	Percentage
< 25 years	23 people	23%
> 25 years	77 people	77%
Amount	100 people	100%

4.1.4 Respondent Characteristics Based on Income

Table 4. Characteristics of Respondents Based on Income

Income	Amount	Percentage
< Rp. 5 million	64 people	64%
> Rp. 5 million	36 people	36%
Amount	100 people	100%

4.1.5 Respondent Characteristics Based on Place of Residence

Table 5. Characteristics of Respondents Based on Place of Residence

Residence	Amount	Percentage
Bandar Lampung	69 people	69%
Outside Bandar Lampung	31 people	31%
Amount	100 people	100%

4.2 Instrument Testing Results

4.2.1 Validity Test

The validity test results indicate that all questionnaire items measuring training, education, and employee competence have correlation coefficients that exceed the minimum acceptable threshold. Therefore, all the indicators used in this study were declared valid and suitable for further analysis.

Table 6. Questionnaire Validity Test Results Training (X_i)

Statement	r_{count}	r_{table}	Condition	Conclusion
Item 1	0.814	0.197	$r_{count} > r_{table}$	Valid
Point 2	0.766	0.197	$r_{count} > r_{table}$	Valid
Point 3	0.840	0.197	$r_{count} > r_{table}$	Valid
Item 4	0.783	0.197	$r_{count} > r_{table}$	Valid
Item 5	0.769	0.197	$r_{count} > r_{table}$	Valid

Table 7. Results of Questionnaire Validity Test Education (X_2)

Statement	r_{count}	r_{table}	Condition	Conclusion
Item 1	0.619	0.197	$r_{count} > r_{table}$	Valid
Point 2	0.581	0.197	$r_{count} > r_{table}$	Valid
Point 3	0.684	0.197	$r_{count} > r_{table}$	Valid
Item 4	0.718	0.197	$r_{count} > r_{table}$	Valid
Item 5	0.752	0.197	$r_{count} > r_{table}$	Valid

Table 8. Results of the Validity Test of the Employee Competency Questionnaire (Y)

Statement	r_{count}	r_{table}	Condition	Conclusion
Item 1	0.693	0.197	$r_{count} > r_{table}$	Valid
Point 2	0.668	0.197	$r_{count} > r_{table}$	Valid
Point 3	0.527	0.197	$r_{count} > r_{table}$	Valid
Item 4	0.808	0.197	$r_{count} > r_{table}$	Valid
Item 5	0.758	0.197	$r_{count} > r_{table}$	Valid
Item 6	0.743	0.197	$r_{count} > r_{table}$	Valid

4.3 Reliability Test Results

Table 9. List of r Interpretations

Coefficient r	Reliability
0.8000 – 1.0000	Very high
0.6000 – 0.7999	Tall
0.4000 – 0.5999	Moderate / Sufficient
0.2000 – 0.3999	Low
0.0000 – 0.1999	Very Low

Table 10. Reliability Test Results

Variables	Chronbach's alpha coefficient	Coefficient r	Conclusion
Training	0.854	0.8000 – 1.0000	Very high
Education	0.693	0.6000 – 0.7999	Tall
Employee Competence	0.790	0.6000 – 0.7999	Tall

4.4 Results of Data Analysis Methods

4.4.1 Multiple Linear Regression Results

Multiple linear regression analysis was used to determine the magnitude of the influence of the independent variable (X) on the dependent variable (Y). Based on the analysis, the following results were obtained.

Table 11. Results of Regression Coefficients Calculation

Variables	Regression value
Constant	4,031
Training	0.702
Education	0.226

The results above are from multiple linear regression calculations using SPSS 2.3.0. The regression equation results are as follows:

$$Y = 4.031 + 0.702 X_1 + 0.226 X_2 \quad (1)$$

- a. Constant coefficient (Y)
The Employee Competency variable is 4.031 if the number of Training and Education variables remains the same or is equal to zero (0).
- b. Training Coefficient (X_1)
If the number of training sessions increases by one, employee competency increases by 0.702 units.
- c. Education Coefficient (X_2)
If the level of education increases by one unit, employee competence increases by 0.226 units.

4.4.2 Correlation Coefficient

4.4.2.1 Training Correlation Coefficient Analysis Regarding Employee Competence

Table 12. Training Correlation Coefficient Analysis Regarding Employee Competence

Correlations			
		Training	Employee competency
Training	Pearson Correlation	1	.712 **
	Sig. (2-tailed)		.000
	N	100	100
Employee competency	Pearson Correlation	.712 **	1
	Sig. (2-tailed)	.000	
	N	100	100

** . Correlation is significant at the 0.01 level (2-tailed).

Based on the calculation results, a correlation coefficient (r) of 0.712 was obtained, indicating a positive relationship between these two variables. The r value of 0.712 indicates a positive linear relationship (one-way) between Training and Employee Competence, meaning that the greater the training, the more positive the relationship between the two variables.

4.4.2.2 Education Correlation Coefficient Regarding Employee Competence

Table 13. Education Correlation Coefficient Regarding Employee Competence

Correlations			
		Education	Employee competency
Education	Pearson Correlation	1	.491 **
	Sig. (2-tailed)		.000
	N	100	100
Employee competency	Pearson Correlation	.491 **	1
	Sig. (2-tailed)	.000	
	N	100	100

** . Correlation is significant at the 0.01 level (2-tailed).

Based on the results, a significant correlation ($r = 0.491$) was observed, indicating a positive relationship between the two variables. The r value of 0.491 indicates a positive linear relationship (one-way) between Education and Employee Competence, meaning that the greater the Education, the more positive the relationship between the two variables.

4.4.3 Coefficient of Determination

Table 14. Coefficient of Determination

Model Summary				
Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.730 ^a	.532	.523	2,524

a. Predictors: (Constant), Training, Education

The table above shows the close influence of Training and Education on Employee Competence. The calculated results were 0.935 and a coefficient of determination of 0.532, or 53.2%. The significant coefficient of determination indicates that 53.2% of the change in the Employee Competence variable is attributable to Training and Education, while the remaining 46.8% is attributable to other factors. The author did not examine aspects such as discipline and leadership.

4.5 Hypothesis Testing

4.5.1 t-Test Results

The t-test was used to test the significance of the difference between a constant and an independent variable. Based on the t-test results, the following results were obtained.

Table 15. Results of Calculation of Coefficients ^a

Variables	Sig	Alpha	Condition	t _{count}	t _{table}	Condition	Information
Training	0,000	0.05	Sig>alpha	7,777	1,984	t _{count} > t _{table}	Ho was rejected
Education	0.023	0.05	Sig < alpha	2,310	1,984	t _{count} > t _{table}	Ho was rejected

4.5.2 The Effect of Training (X₁) on Employee Competence (Y)

Based on Table 4.18, the calculation for the training was obtained (X₁), which obtained a calculated t value of 1.984, while the t_{table} value with dk (dk 100-2=98) is 1.984, so the calculated t (7.777) > t_{table} (1.984) and the sig value (0.000) < alpha (0.05), thus Ho is rejected. Ha is accepted, so it is concluded that Training (X₁) partially influences Employee Competence (Y) in Bintang Amin Hospital, Bandar Lampung.

4.5.3 The Influence of Education (X₂) on Employee Competence (Y)

Based on Table 4.18, the calculation for the Education variable (X₂) obtained a calculated t value of 2,310, while the t_{table} value with dk (dk=100-2=98) is 1.984. Thus, the calculated t (2,310) > t_{table} (1.984) and the sig value (0.023) < alpha (0.05). Thus, Ho is rejected and Ha is accepted. It was concluded that education (X₂) partially influenced Employee Competence (Y) at Bintang Amin Hospital in Bandar Lampung.

4.5.4 F-Test Results

The F-test was used to determine whether the independent variables significantly influenced the dependent variable.

Table 16. F Test Results

Variables	F _{count}	F _{table}	Condition	Sig	Alpha	Condition	Information
Employee Training, Education, and Competence	55,230	2.70	F _{count} > F _{table}	0.00	0.05	Sig>Alpha	Ho is rejected, and Ha is accepted

ANOVA Testing was used to describe the joint influence of the Training (X₁) and Education (X₂) variables on the Employee Competence (Y) variable. To test F with a confidence level of 95% or alpha 5%, the numerator degree of freedom is k - 1, namely the number of variables minus 1. For the degree of freedom, nk is used, that is, the number of samples minus the number of variables. There were four variables (X₁, X₂, and Y) and 100 samples. Therefore, the numerator degrees of freedom are 3 - 1 = 2 and 100. denominator freedom of 100 - 2 = 98 with a significance level of 5%, so that the f_{table} is 2.70 and f_{count} 55,230.

Based on the data analysis results, the calculated F value was 55.230, while the F table value was 2.70. Thus, the calculated F-value is greater than the F-table value; therefore, H₀ is rejected, and H_a is accepted. The calculated probability was 0.000, which is <0.05. The decision is to reject H₀ and accept H_a. So, it can be concluded that there is an influence of Training (X₁) and Education (X₂) simultaneously on Employee Competence (Y) at Bintang Amin Hospital in Bandar Lampung

4.6 Findings and Discussion

The findings of this study confirm that training significantly enhances employee competence in inpatient units. This result indicates that structured training programs improve employees' technical skills, procedural understanding, and work behavior. These findings support the Human Capital Theory and are consistent with previous studies showing that training improves employee competence and performance in healthcare and public service organizations.

Education also significantly and positively affected employee competence. Employees with higher levels of education and access to continuous learning opportunities tend to demonstrate better analytical skills, professional attitudes, and adaptability when performing inpatient-care tasks. This finding aligns with prior research, including studies and Jaya and colleagues, which emphasize that human resource development through education improves competence and performance [Putra et al. \(2025\)](#), [Jaya et al. \(2024\)](#), and that knowledge and expertise contribute to professional effectiveness and relationship performance ([Ferro-Soto, Padin, Lubbe, Svensson, & Høgevold, 2025](#)).

5. Conclusions

5.1 Conclusion

This study examined the role of training and education as strategic human resource development mechanisms to enhance employee competence within hospital inpatient services. Grounded in Human Capital Theory and supported by contemporary competency-based perspectives, this study empirically investigated the individual and combined effects of training and education on employee competence in the inpatient unit at Bintang Amin Hospital in Bandar Lampung. Using a quantitative explanatory design and regression-based analysis, this study provides evidence-based insights into how structured human capital investments contribute to competency development in a complex and labor-intensive healthcare environment. Training positively and significantly affects employee competence. Education positively and significantly affects employee competence.

These results underscore the importance of systematic, continuous, and equitable training and education programs as a strategic approach to improve inpatient service quality. The Findings confirm that training and education are determinants of employee competence in the inpatient unit at Bintang Amin Hospital. Training programs enhance technical and behavioral skills, whereas education strengthens theoretical understanding and professional attitudes. These results empirically support the Human Capital Theory, which views training and education as strategic investments that improve productivity and service quality.

5.2. Research Limitation

Despite its contributions, this study has several limitations that should be considered when interpreting the findings. First, the research was conducted in a single hospital, specifically the inpatient unit of Bintang Amin Hospital, which may limit the generalizability of the results to other healthcare institutions with different organizational characteristics, service capacities and human resource management systems. Second, the use of non-probability (accidental) sampling may limit the representativeness of the sample and increase the risk of sampling bias.

Third, this study focused exclusively on training and education as predictors of employee competence. In contrast, competency development in healthcare settings is influenced by a broader range of organizational and individual factors. To enhance the explanatory power and generalizability, future research should incorporate additional variables, such as leadership style, organizational culture, work motivation, job satisfaction, workload, work environment, technology utilization, reward systems, and supervisory support. Fourth, employing probability sampling techniques, multisite or multi-hospital designs, and longitudinal approaches would provide more robust evidence on the dynamics of competency development and improve the external validity of the findings across diverse healthcare contexts. Data were collected using a self-reported questionnaire that relied on respondents' perceptions. This approach may be subject to response bias, such as social desirability bias or subjective judgment, which could affect the accuracy of measured variables. Finally, the cross-sectional research

design limits the ability to observe changes in employee competence over time, particularly before and after training or educational interventions.

5.3 Suggestions and Directions for Further Research

Based on the limitations and findings of this study, several suggestions are proposed. First, future research should expand its scope by involving multiple hospitals or healthcare institutions to improve the generalizability of findings. Second, probability sampling techniques are recommended to enhance sample representativeness and strengthen the statistical inference. Third, additional variables such as leadership, organizational culture, motivation, work environment, and technology utilization should be incorporated to provide a more comprehensive explanation of employee competence. Fourth, a longitudinal research design is suggested to examine the long-term impact of training and education on employee competence. Finally, future studies should combine quantitative methods with qualitative approaches, such as interviews or focus group discussions, to gain deeper insights into how employees implement and experience training and education.

From a managerial and practical perspective, hospital management should develop structured, continuous, and needs-based training programs aligned with inpatient service demands and competency standards. Management should also encourage employees to pursue formal and professional education, including certification programs, by providing institutional support for the same. In addition, regular competency evaluations are necessary to identify skill gaps and ensure the effectiveness of training initiatives in the field. Furthermore, training and education programs should be integrated with career development and performance appraisal systems to enhance employee's motivation, professionalism, and overall service quality.

Author Contributions

In the research process, the first author, ER contributed to the conceptualization, manuscript drafting, and revision. Second, HH took responsibility for the study design, data analysis, supervision, and final approval.

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