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DRIVING QUALITY EXCELLENCE IN PUBLIC HOUSING CONSTRUCTION: THE SYNERGISTIC EFFECTS OF OHS COMPLIANCE, HUMAN RESOURCE MANAGEMENT, AND TRANSFORMATIONAL LEADERSHIP

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Abstract

This study aims to examine the effects of Occupational Health and Safety (OHS) compliance, Human Resource Management (HRM), and Transformational Leadership (TLD) on the project quality of residential building construction. The research focuses on high-rise residential building projects that present specific challenges in managing OHS, human resources, and leadership. The population includes workers, project managers, and related personnel involved in residential building construction under the Ministry of Public Works and Housing (PUPR). A purposive sampling technique was used to select 384 respondents based on their roles and direct involvement in the project. Data were analyzed using Structural Equation Modeling (SEM) to test direct and indirect relationships between variables. The results indicate that OHS, HRM, and TLD have significant positive direct effects on project quality, with standardized estimates of 0.356, 0.404, and 0.253 respectively, at a 99% confidence level. Additionally, transformational leadership also has a significant indirect effect on project quality mediated by OHS and HRM, with estimates of 0.055 and 0.060 respectively. These findings suggest that in residential building projects, transformational leadership plays a crucial role not only in directly improving project quality but also indirectly through enhancing effective OHS practices and human resource management.

Keywords: ***OHS Compliance, Human Resource Management, Transformational Leadership, Project Quality***

INTRODUCTION

The continuous growth of Indonesia's population poses a major challenge in national development planning, particularly in the housing sector. According to data from Statistics Indonesia (Badan Pusat Statistik, 2023), Indonesia's population reached 280 million people in 2024 and is projected to peak at 324 million by 2061 (Badan Pusat Statistik (BPS, 2024)). This population boom has the potential to cause various problems, especially in the provision of decent, affordable, and safe housing. Land scarcity in urban areas, high urbanization rates, and the imbalance between housing demand and supply risk worsening the current housing backlog, which has reached 9.9 million households (BPS, 2023). If not systematically addressed, this could lead to the emergence of slums, an increase in hidden homelessness, pressure on urban infrastructure, and a decline in overall quality of life (Rizkiana & Gerry, 2022).

To tackle this challenge, the government, through the Ministry of Public Works and Public Housing (PUPR), launched the One Million Houses Program. One concrete form of this program is the construction of low-cost apartments (rusun) across various regions in Indonesia. During the 2020–2024 Strategic Plan period, a total of 11,719 apartment units were built, with a budget allocation of IDR 4.45 trillion in 2024 for 2,629 units, including construction in the Nusantara Capital area (Kementerian PUPR, 2020, 2023; A. News, 2023). However, in practice, the quality of apartment construction work remains an unresolved issue.

The fact that many apartment units in the Batang Integrated Industrial Zone, Central Java, have not been optimally occupied despite being completed since 2022 indicates serious problems in project execution quality and a mismatch between planning and utilization. This issue is not unique to Batang but also occurs in other areas such as Bandung and Jakarta. In Bandung, two apartment towers remain unoccupied, while at Rusun Pasar Rumput Jakarta, only about 400 of the 1,984 available units are inhabited. This condition indicates that apartment development has not fully met public needs and raises concerns about the efficiency of state budget usage. Therefore, a thorough evaluation of the planning, execution, and supervision aspects of apartment projects is needed to ensure that development is effective and well-targeted (detikcom, 2024; Infopublik, 2024; MetroNews, 2024).

The root causes of poor construction quality can be linked to three crucial aspects: compliance with occupational health and safety (OHS), human resource management (HRM), and transformational leadership. First, lack of compliance with OHS standards can lead to accidents and inefficiencies in the construction process, affecting building quality. Second, suboptimal HR management, especially regarding employee competence and experience hinders execution according to technical specifications and quality standards. Third, insufficient transformational leadership results in weak motivation, supervision, and work culture that supports innovation and continuous improvement. These three factors are interrelated and collectively influence project outcomes, necessitating an integrated approach to foster quality excellence in apartment construction.

From a safety perspective, data from the International Labour Organization (ILO) shows that annually there are approximately 430 million cases of occupational accidents and diseases, resulting in 2.78 million deaths and economic losses equivalent to 3.94–4% of a country's GDP (International Labour Organization, 2023). In Indonesia, the trend in Occupational Accident Insurance (JKK) and Death Insurance (JKM) claims continues to rise: from 182,835 JKK claims and 31,324 JKM claims in 2019 to 360,635 JKK claims and 121,531 JKM claims in 2023 (BPJS Ketenagakerjaan, 2024). This trend highlights the importance of strict implementation of Occupational Health and Safety Management Systems (SMK3) in the construction sector.

The Indonesian government has issued several regulations, such as Government Regulation No. 50 of 2012 on SMK3 and Ministry of PUPR Regulation No. 10 of 2021 on SMKK (Kementerian Pekerjaan Umum dan Perumahan Rakyat, 2021; Pemerintah Republik Indonesia, 2012), to reinforce the safety culture. However, implementation in the field still faces challenges, one of which is the quality of human resources in project execution.

Human resource conditions within the Directorate General of Housing show that some project implementing officials do not meet minimum experience requirements. For example, out of 44 commitment-making officials (PPK), 6 had not reached the minimum work experience of 4 years. Similar issues occur in positions such as work unit heads (Satker), regional office heads (Balai), and section heads (Kaur). Mismatched competencies in construction projects can significantly affect decision-making quality, project efficiency, and the effective implementation of OHS policies. Research by Supriyadi et al. (2020) shows that HR management influences construction company performance by 56.3%, highlighting the importance of workforce planning, competency development, technical and leadership training, and ongoing performance evaluation (Supriyadi et al., 2020). Additionally, aspects such as work discipline, loyalty, and motivation also contribute to improving construction worker performance (Willy & Sekarsari, 2020). Therefore, effective HRM is a fundamental foundation for improving HR professionalism, which in turn supports smooth project implementation and compliance with safety standards.

Furthermore, leadership plays an essential role in fostering a work culture that emphasizes safety and quality. Research by Panwar (2021) shows that effective leadership styles can enhance work ethic, employee motivation, and project outcomes (Panwar et al., 2021). However, observations of Government Performance Accountability Reports (LKjIP) and the Integrity Assessment Survey (SPI) by the Corruption Eradication Commission (KPK) show that integrity risk levels within the Directorate General of Housing remain high to very high. Indicators such as misuse of travel budgets (10%) and unofficial payments for promotions (7%) indicate the urgency for systemic improvements through transformational leadership.

Transformational leadership is built on four pillars: (1) idealized influence or moral exemplarity, (2) inspirational motivation to promote a clean and meaningful work culture, (3) intellectual stimulation that encourages innovation and transparency, and (4) individualized consideration to develop individual potential based on integrity. In the context of apartment projects, this leadership model is expected to catalyze improvements in OHS compliance, work quality, and employee motivation.

Previous studies have discussed the relationship between compliance with Occupational Health and Safety (OHS) and construction project quality. (Bourahla et al., 2024) show that effective OHS risk management not only reduces accidents but also fosters social sustainability and better project quality. However, findings by (Asih et al., 2022) note that ergonomic interventions within OHS contexts have not fully demonstrated significant improvements in productivity and quality, indicating that OHS implementation alone does not always guarantee project success. Meanwhile, research on Human Resource Management (HRM) shows that appropriate HRM practices, such as workforce planning and competency development, have a positive impact on construction productivity and work quality (Gurmu, 2021). However, (Sosiady, 2022) emphasizes that digital HRM systems do not always improve employee performance, especially in SMEs, indicating that HRM effectiveness is contextual. In terms of leadership, (Zavari & Afshar, 2023) found that transformational leadership by field managers significantly contributes to construction project success, particularly in fostering a collaborative work culture and focus on quality. Conversely,

(Nurhayati, 2024) notes that a more spiritual and ethical prophetic leadership style is also relevant in social projects, implying the need to adjust leadership styles according to cultural and project contexts. Based on these findings, it is evident that while each variable has shown positive relationships with project quality in some studies, inconsistent or contextual results indicate a research gap. This gap involves comprehensively examining the influence of OHS compliance, HR management, and transformational leadership on the quality of apartment projects in Indonesia, particularly by considering the role of work motivation as a mediating variable.

Based on these issues, this research formulates several key questions: how does OHS compliance affect the quality of apartment construction work; to what extent does HR management support OHS implementation and project quality improvement; how does transformational leadership impact motivation and oversight in ensuring OHS and construction quality standards; and how do OHS compliance, HR management, and transformational leadership interact to determine the quality of apartment construction outcomes. With these problem statements, this research aims to analyze the influence of OHS compliance on construction work quality, examine the role of HR management in supporting project quality, assess the impact of leadership.

METHOD

This research employs an explanatory approach using a qualitative-quantitative method to explain the causal relationships between the studied variables, namely Occupational Health and Safety (OHS), Human Resource Management (HRM), Transformational Leadership (TLD), and Project Quality (PQUAL). The research population includes all workers involved in apartment (low-cost housing) construction projects in Indonesia, whose total number is very large and cannot be precisely determined. Therefore, purposive sampling is used to select relevant samples, specifically workers who are directly involved in the apartment projects. According to Krejcie and Morgan's theory, when the population is very large or unknown and assumed to be nearly 100,000, a representative sample size for quantitative research is 384 respondents. Data are collected through questionnaires containing questions related to the research variables and analyzed using Structural Equation Modeling (SEM) with the AMOS software.

The Structural Equation Modeling (SEM) model consists of two main components: the measurement model and the structural model. The measurement model is used to test the extent to which the indicators validly and reliably represent the latent variables being measured. To ensure validity, each indicator must have a standardized loading factor (SLF) greater than 0.60 and be statistically significant with a critical ratio (CR) greater than 1.96. Construct reliability is tested through the construct reliability (CR) value, which must exceed 0.60, and the variance extracted (VE), which must be greater than 0.50. Indicators that do not meet these criteria will be excluded from the model. Once the measurement model is validated, the analysis proceeds to the structural model, which is used to test the causal relationships between latent variables. In the context of this study, compliance with OHS (X1) and work motivation (X2) are assumed to influence work competence (Z), which in turn affects work productivity (Y). To assess whether the overall model is suitable, a goodness of fit test is conducted using several indicators, including Chi-square, GFI (Goodness of Fit Index), AGFI (Adjusted GFI), CMIN/DF (Chi-square/degree of freedom), RMSEA (Root Mean Square Error of Approximation), RMR (Root Mean Residual), TLI (Tucker-Lewis Index), and NFI (Normed Fit Index). Each of these indicators has specific tolerance thresholds that indicate the model's adequacy.

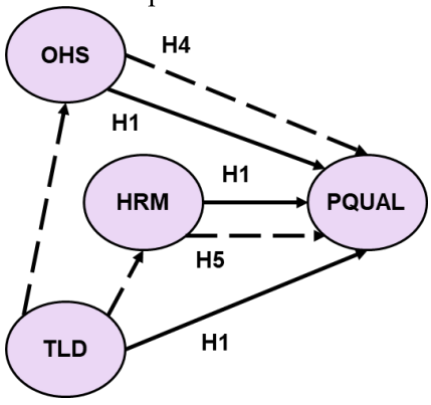

Figure 1. Relationship Constellation Among the Research Variables

The hypotheses formulated in this study are as follows:

Hypothesis 1 (H1): Occupational Health and Safety (OHS) has a significant positive effect on Project Quality (PQUAL).

Hypothesis 2 (H2): Human Resource Management (HRM) has a significant positive effect on Occupational Health and Safety (OHS).
Hypothesis 3 (H3): Transformational Leadership (TLD) has a significant positive effect on Project Quality (PQUAL).
Hypothesis 4 (H4): Transformational Leadership (TLD) has a significant positive effect on Project Quality (PQUAL) through Occupational Health and Safety (OHS).
Hypothesis 5 (H5): Transformational Leadership (TLD) has a significant positive effect on Project Quality (PQUAL) through Human Resource Management (HRM).

RESULTS AND DISCUSSION

The presentation of the research results you have created outlines the descriptive analysis and the Structural Equation Modeling (SEM) analysis used to evaluate the relationships between the variables.

Descriptive Analysis Result

This study employs descriptive analysis to describe the perceptions of 384 respondents who are implementation workers involved in the public housing construction project. Data were collected through the distribution of questionnaires and processed using SPSS. Since the entire population was used as respondents, the sampling technique applied was saturated sampling. To examine the relationships between variables, Structural Equation Modeling (SEM) analysis was used with the assistance of AMOS software. Additionally, the bootstrapping technique was utilized to enhance the reliability of the estimates, considering the relatively small sample size.

Table 1. Descriptive Analysis of OHS Compliance Variable Indicators

	Ind.1 OHS	**Ind.2 OHS**	**Ind.3 OHS**	**Ind.4 OHS**	**Ind.5 OHS**
N	384	384	384	384	384
Mode	4	4	3	4	4
Std. Dev	0,669	0,784	0,817	0,761	0,747
Variance	0,485	0,459	0,552	0,448	0,517
Min	2	2	2	2	2
Max	5	5	5	5	5

Based on the descriptive analysis, the OHS Compliance variable indicates that most respondents agree with the implementation of occupational safety aspects, such as the use of personal protective equipment (PPE), compliance with procedures and OHS signs, as well as reporting near accidents, as reflected by a mode value of 4 on most indicators. However, on the indicator of participation in OHS training, the mode value decreases to 3 with a wider data spread, indicating a diversity of perceptions and low worker involvement in training. This suggests that greater attention is needed to improve participation and the effectiveness of OHS training activities.

Table 2. Descriptive Analysis of HRM Variable Indicators

	Ind.1 HRM	**Ind.2 HRM**	**Ind.3 HRM**	**Ind.4 HRM**	**Ind.5 HRM**	**Ind.6 HRM**
N	384	384	384	384	384	384
Mode	4	3	4	4	4	4
Std. Dev	0,837	0,840	0,870	0,820	0,817	0,780
Variance	0,453	0,452	0,452	0,428	0,517	0,485
Min	2	3	2	3	2	3
Max	5	5	5	5	5	5

Based on the descriptive analysis, the Human Resource Management (HRM) variable shows that the majority of respondents gave positive assessments of HR management practices in the project, particularly on indicators such as training and development, motivation/incentives, performance appraisal, safety management, and employee participation—all of which have a mode value of 4. However, on the recruitment and selection indicator, the mode value is only 3 with a relatively high standard deviation, reflecting more varied perceptions and indicating that the recruitment and selection process is still considered suboptimal by some respondents.

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Table 3. Descriptive Analysis of Transformational Leadership Variable Indicators

	Ind.1 TLD	Ind.2 TLD	Ind.3 TLD	Ind.4 TLD
N	384	384	384	384
Mode	3	4	4	4
Std. Dev	0,829	0,887	0,873	0,790
Variance	0,429	0,447	0,413	0,510
Min	2	2	2	3
Max	5	5	5	5

Based on the descriptive analysis, the Transformational Leadership variable indicates that most respondents gave a positive assessment of the transformational leadership applied, especially on the indicators of inspirational motivation, intellectual stimulation, and individualized consideration, which had a mode of 4 and a maximum value of 5. This reflects a leadership style that is capable of motivating, encouraging innovation, and addressing individual needs. However, on the idealized influence indicator, the mode was only 3 with a relatively high standard deviation, indicating that some respondents still question the exemplary behavior or ideal influence demonstrated by the project leaders.

Table 4. Descriptive Analysis of Project Quality Variable Indicators

	Ind.1 PQUAL	Ind.2 PQUAL	Ind.3 PQUAL	Ind.4 PQUAL
N	384	384	384	384
Mode	4	4	4	4
Std. Dev	0,826	0,820	0,827	0,833
Variance	0,469	0,477	0,443	0,487
Min	2	2	2	2
Max	5	5	5	5

Lastly, based on the descriptive analysis, the Project Quality variable shows that most respondents rated the project quality as fairly good, with a mode of 4 across all indicators—namely specification conformity, functional performance, durability and defect rate, as well as compliance with time and budget. The relatively low standard deviation indicates a fairly consistent perception among respondents regarding the quality of the implemented project.

SEM Analysis Result

The Structural Equation Modeling (SEM) analysis in this study was conducted in two stages: the measurement model (outer model) and the structural model (inner model). The first stage, the measurement model, aimed to test the validity and reliability of the indicators in reflecting the latent variables. Reliability testing was conducted to measure the consistency of indicators in capturing the latent constructs. Based on the results of the validity and construct reliability analysis, the OHS variable showed standardized loading values (SLV) for its indicators ranging from 0.612 to 0.692, with a construct reliability of 0.79 and a variance extracted of 0.65, indicating good reliability and validity. The HRM variable showed SLVs between 0.602 and 0.641, with a construct reliability of 0.82 and a variance extracted of 0.60, also indicating strong internal consistency. The Transformational Leadership (TLD) variable had indicator SLVs between 0.633 and 0.760, a construct reliability of 0.81, and a variance extracted of 0.68, suggesting the construct is valid and reliable. Meanwhile, the Project Quality (PQUAL) variable displayed indicator SLVs ranging from 0.626 to 0.638, the highest construct reliability among all variables at 0.85, and a variance extracted of 0.62, confirming that the measurement quality of this variable is quite adequate. Overall, these results indicate that all the constructs of the research variables possess satisfactory validity and reliability for further analysis.

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Table 5. Construct Validity and Reliability Test Results

Variable	Indicator	SLV	Construct's Reliability	Variance Extracted
OHS	x11	0,692	0,79	0,65
	x12	0,671		
	x13	0,651		
	x14	0,631		
	x15	0,612		
HRM	x21	0,602	0,82	0,60
	X22	0,611		
	X23	0,623		
	x24	0,606		
	X25	0,641		
	x26	0,612		
TLD	z1	0,708	0,81	0,68
	z2	0,666		
	z3	0,633		
	z4	0,760		
PQUAL	y1	0,632	0,85	0,62
	y2	0,626		
	y3	0,632		
	y4	0,638		

The second stage, the structural equation model, aims to test the influence among the variables in the model. Based on the results of the validity and construct reliability analysis, all indicators for the variables OHS (Occupational Health and Safety), HRM (Human Resource Management), TLD (Transformational Leadership), and PQUAL (Project Quality) showed standardized loading values (SLV) above 0.60, indicating that they are valid and suitable for measuring the constructs. The highest construct reliability value was found in the PQUAL variable at 0.85, followed by HRM (0.82), TLD (0.81), and OHS (0.79), all exceeding the minimum threshold of 0.70, demonstrating good internal consistency. The variance extracted (VE) also met the criteria with values above 0.50, specifically 0.65 for OHS, 0.60 for HRM, 0.68 for TLD, and 0.62 for PQUAL, indicating that most of the indicator variance can be explained by their respective constructs. These findings confirm that the four variables in the model have adequate validity and reliability.

Table 6. Direct Effect

			Estimate	S.E.	C.R.	P
PQUAL	←	OHS	0,356	0,081	4,376	0,000
PQUAL	←	HRM	0,404	0,071	5,714	0,000
PQUAL	←	TLD	0,253	0,091	2,778	0,005

Based on the path analysis results, the variables OHS (Occupational Health and Safety), HRM (Human Resource Management), and TLD (Transformational Leadership) have a significant direct effect on PQUAL (Project Quality). The direct effect of OHS on PQUAL is 0.356 (p = 0.000), HRM on PQUAL is 0.404 (p = 0.000), and TLD on PQUAL is 0.253 (p = 0.005), all of which are significant at a 99% confidence level. In addition to the direct effects, there are also indirect effects of TLD on PQUAL through OHS and HRM as mediators, with values of 0.055 and 0.060 respectively. These findings indicate that transformational leadership not only has a direct impact but also

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indirectly influences project quality through the mediating roles of occupational health and safety and human resource management.

Table 7. Indirect Effect

	OHS	HRM	TLD	PQUAL
PQUAL	0,055	0,060	0,000	0,000

In Structural Equation Modeling (SEM) analysis, there are three fundamental assumptions that must be met for the model to be validly interpreted: normality of data, outliers, and multicollinearity. First, the normality test is conducted by examining the skewness and kurtosis values of each indicator. Based on the analysis results, all critical ratio (CR) values for skewness and kurtosis are below the threshold of ±1.96 at a 5% significance level, indicating that the data distribution is approximately normal and there is no violation of the normality assumption.

Second, the multivariate outlier test is performed using the Mahalanobis distance. In this test, observations are categorized as outliers if their Mahalanobis values exceed the critical chi-square value at degrees of freedom corresponding to the number of indicators. With 18 indicators, the chi-square threshold at a 0.001 significance level is 45.31. Based on the data processing results, no observation exceeded this Mahalanobis threshold, so no multivariate outliers were found in the data. Third, the multicollinearity test is conducted by reviewing the determinant value of the correlation matrix (sample moment matrix). If the determinant value is greater than zero, multicollinearity among indicators does not occur. The analysis showed a determinant value of 0.218, indicating no serious multicollinearity issues. With these three basic assumptions fulfilled, the SEM model is suitable for further analysis.

After the basic assumption tests are fulfilled, the next step is to evaluate the model's fit to the data using various Goodness of Fit (GOF) measures.

Table 8. Goodness of Fit (GOF) Criteria

No.	GOFI	Criteria	Result	Status
1	*Statistic Chi-square* (χ^2) atau CMIN	Less is Good	42,678	Good
2	*Goodness of Fit Index* (GFI)	GFI > 0,90	0,915	Good
3	*Adjusted Goodness of Fit Index* (AGFI)	AGFI > 0,90	0,902	Good
4	*Normed Ch-Square* (CMIN/DF)	1,00 < CMIN/DF < 3,00	1,248	Good
5	*Root Mean Square Error of Approximation* (RMSEA)	0,05 < RMSEA < 0,08	0,062	Good
6	*Root Mean Square Residual* (RMR)	RMR < 0,50	0,421	Good
7	*Tucker-Lewis Index* (TLI)	TLI > 0,90	0,908	Good
8	*Normed Fit Index* (NFI)	NFI > 0,90	0,901	Good

The results of the goodness of fit (GoF) analysis indicate a Chi-square (χ^2) statistic of 426.781. Although this value is relatively large, it is acceptable considering the large sample size of 384. Therefore, this Chi-square value does not necessarily indicate model misfit. Other fit indices show very good results, with a Goodness of Fit Index (GFI) of 0.915 and an Adjusted Goodness of Fit Index (AGFI) of 0.902, both meeting the minimum criterion of 0.90.

The Normed Chi-square ratio (CMIN/DF) is 1.248, which falls within the ideal range of 1.00 to 3.00, confirming the model's adequacy. Furthermore, the Root Mean Square Error of Approximation (RMSEA) value is 0.062, indicating a good fit as it lies within the acceptable range of 0.05 to 0.08. The Root Mean Square Residual (RMR) value of 0.421 also supports model fit since it is below the threshold of 0.50. Similarly, the Tucker-Lewis Index (TLI) and Normed Fit Index (NFI) are 0.908 and 0.901, respectively, both exceeding the recommended minimum value of 0.90. Therefore, overall, the model can be considered suitable and robust for further analysis.

Discussion

The results of this study indicate that the variables Occupational Health and Safety (OHS), Human Resource Management (HRM), and Transformational Leadership (TLD) have a significant direct effect on Project Quality (PQUAL). The direct effect of OHS on project quality is 0.356 with a p-value of 0.000, indicating a highly significant relationship. This finding aligns with the study by Farras et al. (2025), which states that effective implementation of occupational health and safety directly improves project work quality by reducing the risk of accidents and work disruptions that could hinder production processes. This is also consistent with findings from Ardiansyah et al. (2024) and Ali et al. (2019), who demonstrated that effective OHS management contributes to smooth project execution, thereby positively impacting project quality.

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Next, HRM shows the largest positive effect on project quality, with a coefficient of 0.404 (p = 0.000). This strengthens the argument that good human resource management, including recruitment, training, motivation, and performance evaluation, is critical to ensuring project quality. Research by Kanaf et al. (2025) reveals that effective HRM can enhance productivity and work quality, while Purwanta and Nawangsari (2018) emphasize that integrated and strategic HRM maximizes employee potential in achieving organizational goals, including project quality.

The TLD variable also has a significant positive effect on project quality, with a coefficient of 0.253 (p = 0.005). Transformational leadership, which emphasizes inspiration, intellectual stimulation, individualized consideration, and idealized influence, motivates project teams to deliver higher quality work. Bass and Riggio (2006) explain that transformational leadership improves employee commitment and performance, resulting in better outcomes. Furthermore, Sugito (2025) confirms that transformational leadership enhances project quality and effectiveness through increased innovation and team collaboration.

Interestingly, this study also finds an indirect effect of TLD on project quality mediated by OHS and HRM, with coefficients of 0.055 and 0.060, respectively. This suggests that transformational leadership not only exerts a direct influence but also strengthens the roles of occupational safety management and human resource management in enhancing project quality. This finding is consistent with Cahyati and Adelia (2024), who state that transformational leaders can influence organizational culture, including safety practices and HR management, which ultimately impacts project performance. Similarly, Deddy (2022) found that transformational leadership increases safety commitment and effective HRM practices, which indirectly improve project outcomes.

Based on these findings, several important implications for project management practice emerge. First, organizations should give serious attention to managing occupational health and safety, as it has been proven to directly improve project quality. Ensuring high safety standards minimizes the risk of disruptions and accidents, thereby enhancing productivity and project outcomes. Second, effective human resource management is key to supporting project quality achievement. Companies need to implement comprehensive HRM strategies—from recruitment, training, to employee development—to maximize contribution to projects. Third, transformational leadership should be developed as a leadership style capable of inspiring and motivating project teams both directly and through enhanced OHS and HRM practices. Leaders who foster a culture of safety and good human resource management will significantly contribute to improving overall project quality. These implications highlight the critical integration of leadership, occupational safety, and human resource management in optimizing project quality across organizations.

CONCLUSION

This study concludes that Occupational Health and Safety (OHS), Human Resource Management (HRM), and Transformational Leadership (TLD) have a significant positive impact on the quality of apartment building projects (Project Quality/PQUAL). The direct effects of these three variables on apartment project quality were proven significant with a high confidence level, with HRM showing the strongest influence. Additionally, transformational leadership also contributes indirectly through the mediating roles of OHS and HRM in improving apartment project quality. These findings reinforce the critical role of leadership, human resource management, and occupational safety as key factors in achieving optimal and standards-compliant quality in apartment construction projects.

Project managers of apartment construction should strengthen occupational health and safety practices as well as human resource management, considering the complexity and high risks involved in vertical construction such as apartment buildings. Developing transformational leadership among project managers and supervisors is also essential to effectively motivate work teams, enhance compliance with safety procedures, and improve coordination among teams. Furthermore, it is recommended that future research considers specific factors in apartment construction projects, such as technical aspects of vertical construction, limited work environments, and the involvement of various stakeholders, to gain deeper and more practical insights for improving apartment project quality.

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