Jurnal Kesehatan dan Keselamatan Kerja
Vol 1, No 1, 2026, 17-30 https://doi.org/10.35912/kesmaker.v1i1.6774

Occupational Safety and Health Effects on Employee Performance: Evidence from a State-Owned Telecommunications Company

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Article History
Received on 12 March 2026
1st Revision on 19 March 2026
2nd Revision on 05 April 2026
3rd Revision on 21 April 2026
Accepted on 28 April 2026

Abstract

Purpose: This study examines the effects of occupational safety and occupational health on employee performance at PT Telkom Indonesia Witel East Jakarta, addressing limited evidence from the Indonesian state-owned telecommunications sector.

Research Methodology: A quantitative survey was conducted using saturation sampling of all 60 employees in the SAS Division. Data were collected through Likert-scale questionnaires and analyzed using Multiple Linear Regression (MLR) in SPSS 25. Instrument validity, reliability, and classical assumption tests were performed before hypothesis testing.

Results: All instruments were valid and reliable. The regression model met normality, multicollinearity, and heteroscedasticity assumptions. The regression equation was $Y = 6.619 + 0.275X1 + 0.333X2$. Partial t-tests showed that occupational safety ($t = 3.044$, $p = 0.004$) and occupational health ($t = 2.401$, $p = 0.008$) significantly affected employee performance. The F-test confirmed a significant joint effect ($F = 14.161$, $p < 0.001$). The model explained 33.2% of the variance in employee performance ($R^2 = 0.332$).

Conclusions: Occupational safety and occupational health positively and significantly influence employee performance, both individually and simultaneously. These findings indicate that strengthening workplace safety and health programs can contribute to improved employee productivity and organizational performance.

Limitations: The study focuses on a single division within one company, limiting generalizability. Additional organizational factors may explain the remaining performance variance.

Contributions: This study provides empirical evidence on the Occupational Health and Safety (OHS) performance relationship in an Indonesian state-owned telecommunications company and supports evidence-based OHS policy development.

Keywords: *Employee Performance, K3, Multiple Linear Regression, Occupational Health, Occupational Safety*

How to Cite: Melinda, M., & Sabil, S.. (2026). Occupational Safety and Health Effects on Employee Performance: Evidence from a State-Owned Telecommunications Company. *Jurnal Kesehatan dan Keselamatan Kerja*, 1(1), 17-30.

1. Introduction

Occupational Health and Safety (OHS), commonly referred to as Keselamatan dan Kesehatan Kerja (K3) in Indonesia, constitutes a foundational dimension of organizational human resource

management. The relationship between OHS conditions and employee performance has attracted substantial empirical attention across industrial sectors, with consistent findings documenting that organizations providing safe and healthy working environments realize superior workforce productivity, lower absenteeism, and reduced turnover costs (June & Siagian, 2020; Wibowo & Slamet, 2021; Muafiq, 2022). Within the Indonesian regulatory framework, OHS obligations are codified in Law No. 1 of 1970 on Work Safety and Government Regulation No. 50 of 2012 on the Application of the OHS Management System, which collectively mandate that employers systematically identify, assess, and control workplace hazards across all organizational settings including office and service environments.

The telecommunications sector presents a distinctive OHS context that has received comparatively limited empirical attention. Unlike manufacturing or construction environments, where physical and mechanical hazards dominate OHS risk profiles, telecommunications service operations expose employees primarily to ergonomic hazards (prolonged sedentary work, visual display unit exposure, repetitive strain), psychosocial risks (work pressure, customer service stress, performance targets), and environmental factors (air quality, noise, lighting) in office settings (Panghestuningtyas & Arif, 2022; Samad et al., 2022). Despite this distinctive risk profile, systematic OHS research in telecommunications and particularly in State-Owned Telecommunications Enterprises (SOEs), which employ hundreds of thousands of Indonesian workers is notably absent from the published literature.

PT Telkom Indonesia is Indonesia's largest state owned telecommunications and information technology company, serving over 170 million subscribers nationwide. PT Telkom Indonesia Witel (Regional Telecommunications) East Jakarta is a regional operational unit responsible for sales, network management, and customer service functions within the East Jakarta area. The SAS Division (Sales, Administration, and Support), which constitutes the target population of this study, is directly involved in customer-facing sales operations, administrative processing, and service support activities roles characterized by high workload volume, customer interaction pressure, and sustained use of digital workstations. These conditions create OHS exposure patterns with direct implications for employee well-being and performance output.

Despite the practical relevance of OHS in this context, no published empirical study has examined the specific effects of occupational safety and occupational health on employee performance within PT Telkom Indonesia or comparable Indonesian State-Owned Enterprise (SOE) telecommunications organizations. Existing K3 performance studies in Indonesia have concentrated in manufacturing Muafiq, 2022, shipping June & Siagian, 2020, and agribusiness (Samad et al., 2022) sectors, leaving the office-based telecommunications context empirically uncharted.

This study addresses this gap by quantitatively examining the effects of occupational safety (X1) and occupational health (X2) on employee performance (Y) among SAS Division employees of PT Telkom Indonesia Witel East Jakarta. Three research questions guide the investigation: (1) Does occupational safety have a positive and significant partial effect on employee performance? (2) Does occupational health have a positive and significant partial effect on employee performance? (3) Do occupational safety and occupational health jointly exert a significant simultaneous effect on employee performance?

The study makes three contributions. Empirically, it provides the first quantitative OHS performance evidence from an Indonesian SOE telecommunications context, filling a documented sectoral gap. Theoretically, it extends the OHS performance relationship literature to office-based knowledge work environments, testing whether the positive associations documented in physically hazardous industrial settings generalize to ergonomic and psychosocial OHS conditions in service sector workplaces. Practically, the findings inform OHS investment prioritization for PT Telkom Indonesia management, providing evidence-based guidance on which OHS dimensions most strongly predict employee performance outcomes. The paper is structured as follows: Section 2 reviews the theoretical foundations and prior empirical literature. Section 3 describes the research methodology. Section 4

presents and discusses the empirical findings. Section 5 provides conclusions, limitations, and directions for future research.

2. Literature Review and Hypotheses Development

2.1 Employee Performance: Theoretical Foundations

Employee performance is defined as the demonstrated level of achievement by an individual in executing assigned tasks and responsibilities, relative to the standards set by the employing organization (Mangkunegara, 2017; Hutagalung, 2022). Performance is conceptualized as multidimensional, encompassing quantitative output (task volume completed per unit time), qualitative output (accuracy, thoroughness, and standard conformance of work), and timeliness (completion of tasks within specified deadlines) (Wibowo & Slamet, 2021; Chistian, 2021). These three dimensions quantity, quality, and timeliness form the measurement framework adopted in this study, consistent with prior K3-performance research in the Indonesian context (Rosento et al., 2021; Muafiq, 2022).

Organizational performance is recognized as an aggregate outcome of individual performance: when employees consistently achieve high individual performance levels, organizational goal attainment is facilitated, and vice versa Hutagalung, 2022. This individual-organizational performance linkage is particularly salient in service sector organizations such as PT Telkom Indonesia, where individual employee responsiveness, accuracy, and service quality directly and immediately affect customer satisfaction and organizational reputation.

Human capital theory (Becker, 1964) provides a foundational theoretical rationale for the OHS performance relationship: investments in employee health and safety are analogous to investments in human capital that enhance worker productive capacity. Workers operating in safe, healthy environments are better equipped to direct cognitive and physical effort toward task performance than those experiencing pain, fatigue, anxiety, or distraction from hazard exposure (Samad et al., 2022; Winarno & Andjarwati, 2019). Resource Conservation Theory (Hobfoll, 1989) further posits that employees who perceive their physical and psychological resources as threatened by inadequate OHS conditions will redirect attentional and motivational resources toward self-protective behaviors rather than productive performance, generating a negative performance effect.

2.2 Occupational Safety and Its Performance Effects

Occupational safety refers to the organizational provision of physical and psychological workplace conditions that protect employees from injury, accident, and harm (Wibowo & Slamet, 2021; June & Siagian, 2020). Physical safety encompasses equipment condition and guarding, hazard signage and demarcation, emergency preparedness (fire suppression, emergency exits, first aid), and safe work procedure enforcement. Psychological safety increasingly recognized as a distinct OHS dimension encompasses the assurance of equitable treatment, insurance coverage for occupational risks, and organizational commitment to non-retaliatory safety reporting Wibowo & Slamet, 2021.

The theoretical mechanism through which occupational safety affects performance operates through multiple pathways. At the direct level, workplace accidents and injuries remove employees from productive activity through medical leave, rehabilitation periods, and temporary or permanent capacity reduction directly reducing individual and organizational performance output (June & Siagian, 2020; Muafiq, 2022). At the indirect level, perceived safety conditions affect employee psychological states: workers who perceive their workplace as safe experience lower anxiety and fear of injury, enabling focused attention on performance tasks; conversely, workers perceiving inadequate safety exhibit elevated distraction and reduced task engagement (Panghestuningtyas & Arif, 2022; Winarno & Andjarwati, 2019).

Empirical evidence from multiple Indonesian contexts consistently confirms positive and significant occupational safety performance relationships: June and Siagian (2020) in a shipyard setting, Supriyanto and Supriyanto (2020) in retail, Muafiq (2022) in textile manufacturing, and Winarno and Andjarwati (2019) in metal manufacturing all found statistically significant partial effects of

occupational safety on employee performance. The present study tests whether this relationship generalizes to an office-based telecommunications SOE context.

2.3 Occupational Health and Its Performance Effects

Occupational health refers to the organizational commitment to maintaining and promoting employees' physical, mental, and social well-being in relation to work conditions and work demands (Samad, Sendow, & Uhing, 2022; International, 2021). In office environments, the principal occupational health determinants include air quality and temperature comfort (ventilation and thermal environment), lighting adequacy (preventing visual fatigue and eye strain), noise control (protecting auditory health and concentration quality), odor/chemical exposure management, and ergonomic workspace layout (desk height, seating design, monitor positioning) (Rosento, Yulistria, Handayani, & Nursanty, 2021; Panghestuningtyas, & Arif, 2022).

The health performance relationship in knowledge work contexts operates primarily through cognitive capacity mechanisms: poor environmental health conditions including inadequate ventilation, excessive noise, glare, and thermal discomfort directly impair cognitive function, including concentration, memory, and decision-making accuracy (World, 2019). Sustained exposure to poor health conditions further generates cumulative musculoskeletal, visual, and psychosocial health burdens that manifest in elevated absenteeism, presenteeism (reduced performance while present), and turnover intention (Samad et al., 2022; Wibowo, & Slamet, 2021).

In the PT Telkom Indonesia context, occupational health dimensions of particular relevance include workstation ergonomics (given the sustained computer-based work of SAS Division employees), air conditioning and ventilation quality, noise management in open-plan office environments, and psychosocial stress management given the customer service pressure associated with telecommunications frontline roles (Danielsson & Theorell, 2024). These dimensions may have stronger performance implications in this context than in the manufacturing settings that dominate prior K3-performance literature (Becker, 1964; Yusuph, & Kisumbe, 2024).

2.4 Prior Empirical Studies

Table 1 summarizes the most relevant prior empirical studies on the OHS employee performance relationship, positioning the present study relative to existing evidence.

Table 1. Summary of Prior Studies on OHS Effects on Employee Performance

Author(s) & Year	Setting	Method	Key Finding
June & Siagian (2020)	PT Lautan Lestari Shipyard	MLR	Occupational safety and work environment both positively and significantly influence employee performance
Rosento et al. (2021)	Manufacturing company	MLR	OHS (K3) variables positively affect employee work productivity; physical work environment factors are key moderators
Wibowo & Slamet (2021)	PT Frasta Survey Indonesia, Kalimantan	MLR	Occupational health and safety have significant positive effects on employee performance; health dimension shows stronger coefficient
Muafiq (2022)	PT Primatexco Indonesia (Finishing Unit)	MLR	Both occupational safety and occupational health significantly influence employee performance; simultaneous effects confirmed via F-test
Panghestuningtyas & Arif (2022)	PT X (manufacturing)	MLR	K3 variables positively predict performance; psychosocial health risk factors emerge as significant additional predictors

Author(s) & Year	Setting	Method	Key Finding
Samad et al. (2022)	PT Salaim Ivomas Pratama (Bimoli)	MLR	Safety, health, and job satisfaction jointly influence employee performance in post-pandemic (new normal) conditions
Supriyanto & Supriyanto (2020)	PT Hero Supermarket Tbk	MLR	Leadership and K3 jointly predict work productivity; K3 shows independent significant effect on performance
Winarno & Andjarwati (2019)	PT Maspion I, Sidoarjo	MLR	OHS, work environment, work morale, and job stress jointly affect employee performance; OHS is among significant predictors
Present Study (2023)	PT Telkom Indonesia Witel East Jakarta (SAS Division)	MLR, saturation sampling	First K3 performance study in a state-owned telecommunications company; occupational safety has stronger coefficient than health (β=.406 vs .235); combined R^2=33.2%

As Table 1 demonstrates, the K3 performance literature has established robust positive effects across diverse industrial contexts. However, two consistent gaps are evident: (1) no prior study has examined this relationship in an Indonesian SOE telecommunications context; and (2) most studies do not systematically distinguish between the relative effect magnitudes of safety and health dimensions, limiting guidance on OHS investment prioritization. The present study addresses both gaps.

2.5 Theoretical Framework and Hypotheses

The theoretical framework of this study integrates Human Capital Theory (Becker, 1964) and Resource Conservation Theory (Hobfoll, 1989) to propose that organizational investment in occupational safety and health resources enhances employee cognitive and physical capacity for performance, reduces resource depletion through injury and illness, and strengthens affective organizational commitment all operating as mediating pathways in the OHS performance relationship.

Based on the theoretical framework and prior empirical literature, three hypotheses are proposed:

> *H_1:* Occupational safety has a positive and significant partial effect on employee performance at PT Telkom Indonesia Witel East Jakarta.
>
> *H_2:* Occupational health has a positive and significant partial effect on employee performance at PT Telkom Indonesia Witel East Jakarta.
>
> *H_3:* Occupational safety and occupational health jointly exert a positive and significant simultaneous effect on employee performance at PT Telkom Indonesia Witel East Jakarta.

3. Research Methodology

3.1 Research Design

This study adopts a quantitative explanatory research design, employing multiple linear regression (MLR) to test the causal relationships between two independent variables occupational safety (X1) and occupational health (X2) and one dependent variable employee performance (Y) (Wisudaningsi, Arofah, & Belang, 2019). This design is appropriate because the study seeks to establish the direction, magnitude, and statistical significance of hypothesized causal effects, objectives that require systematic measurement, controlled variable comparison, and probabilistic inference capabilities that are characteristic of quantitative survey-based research (Ulfa, 2021; Purba et al., 2021).

3.2 Research Setting, Population, and Sample

The research was conducted at PT Telkom Indonesia Witel East Jakarta, focusing on the SAS Division (Sales, Administration, and Support). The total population comprised 60 SAS Division employees. A saturation sampling method was applied equivalent to a census whereby all 60 employees constituted the research sample. Saturation sampling is appropriate when the total population size is manageable

and the study aims to characterize the population comprehensively rather than inferentially estimate population parameters from a subset (Mardiatmoko, 2020). The sample profile encompassed all roles within the division, including frontline sales officers, administrative staff, and support personnel, ensuring that the OHS perceptions and performance assessments captured reflect the full operational diversity of the division.

3.3 Data Collection and Measurement Instruments

Primary data were collected through structured questionnaires distributed electronically via Google Forms. The questionnaire comprised three sections: (1) Occupational Safety (X1): 10 items measuring physical safety provisions (hazard signage, emergency equipment, workspace safety layout) and psychological safety provisions (organizational safety policy equity, occupational risk insurance), adapted from Wibowo and Slamet (2021); (2) Occupational Health (X2): 5 items measuring physical environmental health conditions (air quality, lighting, noise level, odor/chemical exposure, workspace layout ergonomics), adapted from Rosento et al. (2021); and (3) Employee Performance (Y): 6 items measuring work quantity, quality, and timeliness, adapted from Wibowo and Slamet (2021). All items were rated on a five-point Likert scale: 1 (Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), and 5 (Strongly Agree).

3.4 Validity and Reliability Testing

Instrument validity was assessed through Pearson product-moment correlation. Each item's r-count was compared to the critical r-table value at significance level $\alpha = 0.05$, two-tailed, with $df = N - 3 = 60 - 3 = 57$. The critical r-table value was 0.254. Items with r-count > r-table were declared valid Purba et al., 2021. Instrument reliability was assessed using Cronbach's Alpha; constructs with Cronbach's Alpha ≥ 0.60 were considered reliable Purba et al., 2021.

3.5 Classical Assumption Tests

Prior to regression analysis, three classical assumption tests were conducted to verify regression model eligibility. The Kolmogorov–Smirnov test was used for normality assessment; a significance value greater than 0.05 indicates a normal residual distribution Mardiatmoko, 2020. Multicollinearity was assessed via Variance Inflation Factor (VIF): VIF < 10 and Tolerance > 0.1 indicate acceptable multicollinearity levels Mardiatmoko, 2020. Heteroscedasticity was tested using the Glejser test, in which regressing absolute residuals on the independent variables with resulting significance values > 0.05 for all predictors indicates the absence of heteroscedasticity Mardiatmoko, 2020.

3.6 Analysis: Multiple Linear Regression and Hypothesis Testing

Multiple linear regression was performed using SPSS version 25, generating the regression equation $Y = a + b_1X1 + b_2X2$, where a is the constant, b_1 is the regression coefficient for occupational safety, and b_2 is the regression coefficient for occupational health. The coefficient of determination (R^2) was used to assess the proportion of performance variance explained by the two predictors jointly. Partial hypothesis testing (H1 and H2) was conducted using the t-test at $\alpha = 0.05$ (two-tailed), with t-table = 2.002 (df = 57). Simultaneous hypothesis testing (H3) was conducted using the F-test; F-count > F-table (3.15, $df_1 = 2$, $df_2 = 57$) with Sig. < 0.05 was adopted as the rejection criterion for the null hypothesis (Hair, Hult, Ringle, Sarstedt, Danks, & Ray, 2022; Sarstedt, & Mooi, 2023) .

4. Results and Discussions

4.1 Validity Test Results

Table 2. Validity Test Results (n = 60; r-table = 0.254, df = 57, α = 0.05)

Variable	Item	r-count	r-table	df = 57	Decision
Occupational Safety (X1)	X1.1	0.842	0.254	57	Valid
	X1.2	0.804	0.254	57	Valid
	X1.3	0.724	0.254	57	Valid
	X1.4	0.806	0.254	57	Valid
	X1.5	0.851	0.254	57	Valid
	X1.6	0.772	0.254	57	Valid

Variable	Item	r-count	r-table	df = 57	Decision
	X1.7	0.810	0.254	57	Valid
	X1.8	0.789	0.254	57	Valid
	X1.9	0.716	0.254	57	Valid
	X1.10	0.821	0.254	57	Valid
Occupational Health (X2)	X2.1	0.756	0.254	57	Valid
	X2.2	0.688	0.254	57	Valid
	X2.3	0.862	0.254	57	Valid
	X2.4	0.868	0.254	57	Valid
	X2.5	0.745	0.254	57	Valid
Employee Performance (Y)	Y1	0.806	0.254	57	Valid
	Y2	0.841	0.254	57	Valid
	Y3	0.726	0.254	57	Valid
	Y4	0.652	0.254	57	Valid
	Y5	0.872	0.254	57	Valid
	Y6	0.809	0.254	57	Valid

Table 2 presents the validity test results for all 21 questionnaire items across the three variables. All items yielded r-count values substantially exceeding the r-table threshold of 0.254 (range: 0.652–0.872), confirming that each item validly measures its intended construct. The highest item loadings were observed for X1.5 (Occupational Safety, r = 0.851), X2.4 (Occupational Health, r = 0.868), and Y5 (Employee Performance, r = 0.872), indicating particularly strong item-construct convergence for these dimensions.

4.2 Reliability Test Results

Table 3. Reliability Test Results

Variable	Cronbach's Alpha	Decision
Occupational Safety (X1)	0.932	Reliable
Occupational Health (X2)	0.841	Reliable
Employee Performance (Y)	0.870	Reliable

Source: Primary data processed with SPSS version 25

Table 3 presents the reliability coefficients for all three constructs. All Cronbach's Alpha values substantially exceed the minimum threshold of 0.60 (Hair, Risher, Sarstedt, & Ringle, 2019): Occupational Safety (α = 0.932), Occupational Health (α = 0.841), and Employee Performance (α = 0.870). The exceptionally high alpha for Occupational Safety (0.932) indicates strong inter-item consistency, reflecting that the 10-item safety scale measures a highly coherent underlying construct. All constructs are classified as reliable, confirming the internal consistency of the measurement instruments.

4.3 Classical Assumption Tests

4.3.1 Normality Test

Table 4. One-Sample Kolmogorov–Smirnov Normality Test Results

Test	Statistic	Decision
Kolmogorov–Smirnov Z	0.172	Normal (p > 0.05)
Asymp. Sig. (2-tailed)	0.172	Distribution is normal

Source: Primary data processed with SPSS version 25

Table 4 presents the Kolmogorov–Smirnov normality test results. The asymptotic significance value of 0.172 exceeds the 0.05 threshold, confirming that the regression residuals are normally distributed.

The model therefore satisfies the normality assumption for MLR.

4.3.2 Multicollinearity Test

Table 5. Multicollinearity Test Results (VIF and Tolerance Statistics)

Variable	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	6.619	3.877	—	1.707	.093	—	—
Occupational Safety (X1)	.275	.090	.406	3.044	.004	.658	1.519
Occupational Health (X2)	.333	.189	.235	2.401	.008	.658	1.519

Source: Primary data processed with SPSS version 25

Table 5 presents the multicollinearity diagnostic statistics. Both independent variables yield identical Tolerance values (0.658 > 0.1) and VIF values (1.519 < 10), indicating the complete absence of problematic multicollinearity between occupational safety and occupational health. The two predictor variables are sufficiently orthogonal to enable independent estimation of their respective regression coefficients without distortion from inter-predictor collinearity (Mardiatmoko, 2020).

4.3.3 Heteroscedasticity Test (Glejser)

Table 6. Heteroscedasticity Test Results (Glejser Method)

Variable	B	Std. Error	t	Sig.
(Constant)	2.341	2.415	0.969	.336
Occupational Safety (X1)	−.068	.056	−1.212	.230
Occupational Health (X2)	.019	.118	.164	.870

Table 6 presents the Glejser heteroscedasticity test results. The significance values for occupational safety (Sig. = 0.230 > 0.05) and occupational health (Sig. = 0.870 > 0.05) both exceed the 0.05 threshold, confirming that heteroscedasticity is absent. The variance of residuals is constant across the range of fitted values (homoscedasticity), satisfying this prerequisite for valid MLR inference (Mardiatmoko, 2020).

4.4 Multiple Linear Regression Results

Table 7 presents the full multiple linear regression results, yielding the following regression equation:

$$Y = 6.619 + 0.275X1 + 0.333X2 \quad (1)$$

The regression equation (1) indicates that employee performance (Y) is positively influenced by both occupational safety (X1) and occupational health (X2). The constant value of 6.619 represents the baseline level of employee performance when both independent variables are assumed to be zero. The coefficients of 0.275 for occupational safety and 0.333 for occupational health indicate that a one-unit increase in each variable is associated with an increase of 0.275 and 0.333 units, respectively, in employee performance, assuming the other variable remains constant. These positive coefficients suggest that improvements in workplace safety and health contribute to higher employee performance.

Table 7. Multiple Linear Regression Results

Variable	B	Std. Error	Beta (β)	t-count	Sig.
(Constant)	6.619	3.877	—	1.707	.093
Occupational Safety (X1)	.275	.090	.406	3.044	.004
Occupational Health (X2)	.333	.189	.235	2.401	.008

Table 7 shows the results of the multiple linear regression analysis examining the effects of occupational safety and occupational health on employee performance. The constant value (B = 6.619) represents the baseline level of employee performance when both independent variables are

assumed to be at zero. Occupational safety (X1) has a positive and significant effect on employee performance (B = 0.275, β = 0.406, t = 3.044, p = 0.004), indicating that an increase in occupational safety is associated with improved performance. Likewise, occupational health (X2) also demonstrates a positive and significant effect on employee performance (B = 0.333, β = 0.235, t = 2.401, p = 0.008). Based on the standardized beta coefficients, occupational safety (β = 0.406) exerts a stronger relative influence on employee performance than occupational health (β = 0.235), although both variables contribute significantly to enhancing employee performance. These findings suggest that improving workplace safety and health conditions can positively support employee productivity and work outcomes.

4.5 Coefficient of Determination

The analysis of the occupational safety and occupational health model shows a moderate positive correlation with employee performance, with an R value of 0.576. The coefficient of determination, R^2, is 0.332, indicating that 33.2% of the variance in employee performance can be explained by the combined influence of occupational safety and health. The adjusted R^2, which accounts for the number of predictors relative to the sample size, is 0.308, providing a bias-corrected estimate of the model's explanatory power. The standard error of estimate is 2.144, reflecting the average deviation of observed employee performance scores from the regression predictions.

These results suggest that while occupational safety and health significantly contribute to employee performance, 66.8% of the variance is attributable to other factors, such as leadership quality, employee motivation, compensation, individual competencies, and organizational culture. Overall, the model demonstrates moderate explanatory power, confirming that occupational safety and health are important determinants of employee performance but operate within a broader, multidimensional organizational context (Chistian, 2021; Rivalita, & Ferdian, 2020).

4.6 Hypothesis Testing: Partial Effects (t-Test)

Table 8. Partial Hypothesis Testing Results (t-Test)

Variable	t-count	t-table	Sig.	Result
Occupational Safety (*X1*)	3.044	2.002	0.004	Significant
Occupational Health (*X2*)	2.401	2.002	0.008	Significant

Table 8 provides the t-test statistics for both partial hypotheses. For Occupational Safety (X1): t-count = 3.044 > t-table = 2.002, and Sig. = 0.004 < 0.05. H0.1 is therefore rejected and H1 is supported: occupational safety exerts a positive and statistically significant partial effect on employee performance. For Occupational Health (X2): t-count = 2.401 > t-table = 2.002, and Sig. = 0.008 < 0.05. H0.2 is therefore rejected and H2 is supported: occupational health exerts a positive and statistically significant partial effect on employee performance. Both predictors independently and significantly predict employee performance, confirming the generalizability of the OHS performance relationship to the office-based telecommunications context.

4.7 Hypothesis Testing: Simultaneous Effect (F-Test)

Table 9. F-Test Results (Simultaneous Significance)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	130.218	2	65.109	14.161	.000
Residual	262.115	57	4.597	—	—
Total	392.333	59	—	—	—

Table 9 shows that F-count = 14.161 substantially exceeds F-table = 3.15 ($df_1 = 2$, $df_2 = 57$), and the significance value is 0.000 < 0.05. H0.3 is therefore rejected and H3 is supported: occupational safety and occupational health jointly exert a positive and statistically significant simultaneous effect on employee performance. This simultaneous significance confirms that the combined OHS environment is a meaningful and coherent predictor system for employee performance at PT Telkom Indonesia Witel East Jakarta.

4.8 Discussions

The empirical findings of this study confirm all three research hypotheses, providing the first quantitative evidence of positive OHS–employee performance relationships in an Indonesian SOE telecommunications context. Several substantive points merit critical discussion. First, the stronger regression coefficient of occupational health ($b_2 = 0.333$) relative to occupational safety ($b_1 = 0.275$) aligns with the theoretical expectation that, in office-based knowledge work environments, health environment quality specifically air quality, lighting, noise management, and ergonomic workspace design is more proximally relevant to cognitive performance than physical accident prevention measures (Rosento, Yulistria, Handayani, & Nursanty, 2021; Panghestuningtyas, & Arif, 2022). Telecommunications office workers are not primarily exposed to physical injury hazards such as machinery, falls from height, or chemical burns; their primary OHS exposure is to the quality of their working environment as a context for sustained cognitive effort. This finding contrasts with manufacturing-context studies where physical safety coefficients typically exceed health coefficients (Muafiq, 2022; June, & Siagian, 2020), and suggests that OHS investment prioritization in telecommunications SOEs should emphasize environmental health infrastructure (HVAC systems, ergonomic furniture, noise abatement) alongside conventional safety programs.

Second, the R^2 of 0.332 while statistically significant and comparable to similar studies in the Indonesian OHS literature by Wibowo and Slamet (2021) indicates that two-thirds of employee performance variance remains unexplained by the OHS variables alone. This finding is theoretically consistent with established performance determinants including work motivation, leadership quality, competency level, organizational commitment, and compensation equity. Future research should incorporate these additional performance determinants within a more comprehensive model, potentially including OHS as a moderating rather than direct predictor for example, testing whether OHS conditions moderate the motivation–performance or competency performance relationships.

Third, the high Cronbach's Alpha for the occupational safety scale ($\alpha = 0.932$) suggests that SAS Division employees share a coherent and consistent perception of the company's safety provisions, indicating organizational-level rather than individual-level safety climate variation. This observation is significant for managerial interpretation: OHS perceptions at PT Telkom Indonesia Witel East Jakarta are not idiosyncratic but reflect shared assessments of systemic organizational safety conditions, making organizational-level OHS interventions more likely to generate corresponding changes in collective performance outcomes (Birowo, & Putra, 2023; Huang, Fu, Wei, Gollan, & Xu, 2023).

Fourth, the standardized coefficients ($\beta = 0.406$ for X1 and $\beta = 0.235$ for X2) reveal an apparent reversal of the magnitude ranking observed in unstandardized coefficients: occupational safety shows the larger standardized effect. This discrepancy reflects the different distributional variances of the two predictors the 10-item safety scale has greater variance than the 5-item health scale and the standardized coefficient is the more appropriate basis for comparing the relative magnitude of effect between predictors measured on different scales. When standardized coefficients are considered, occupational safety ($\beta = 0.406$) has the stronger relative influence on employee performance, consistent with the majority of prior K3-performance studies in Indonesia (Pradja, & Wibowo, 2022; Setiawan, & Astutik, 2022; Sinaga, & Sinaga, 2022).

5. Conclusions

5.1 Conclusion

This study examined the effects of occupational safety (X1) and occupational health (X2) on employee performance (Y) among 60 SAS Division employees of PT Telkom Indonesia Witel East Jakarta, using multiple linear regression analysis. All three research hypotheses were supported by the empirical findings. Occupational safety exerts a positive and statistically significant partial effect on employee performance ($t = 3.044$, Sig. = 0.004; H1 supported). Occupational health similarly exerts a positive and statistically significant partial effect on employee performance ($t = 2.401$, Sig. = 0.008; H2 supported). Jointly, occupational safety and occupational health significantly predict employee performance (F

= 14.161, Sig. = 0.000; H3 supported), together explaining 33.2% of performance variance (R^2 = 0.332).

The regression equation Y = 6.619 + 0.275X1 + 0.333X2 indicates that occupational health has a marginally larger unstandardized coefficient than occupational safety, whereas standardized coefficients (β = 0.406 for X1 vs. β = 0.235 for X2) indicate that occupational safety has the stronger relative effect when scale variances are equalized. These findings collectively confirm that OHS conditions are meaningful predictors of employee performance in the Indonesian SOE telecommunications context, extending prior evidence from manufacturing and industrial settings to the office-based knowledge work environment. The practical implication is clear: organizational investment in both the physical safety of the workplace and the quality of the working health environment yields measurable employee performance returns.

5.2 Research Limitations

Four limitations qualify the scope and interpretation of this study's findings. First, the cross-sectional design captures OHS perceptions and performance assessments at a single time point, precluding causal inference about the temporal dynamics of the OHS performance relationship; reverse causality in which high-performing employees may perceive OHS conditions more positively cannot be ruled out from cross-sectional data. Second, the study is restricted to a Single Organizational Division (SAS) of a single regional unit (Witel East Jakarta) of PT Telkom Indonesia; findings may not generalize to other divisions, other regional units, or other Indonesian telecommunications companies. Third, the R^2 of 0.332 indicates that 66.8% of employee performance variance is attributable to factors outside the study model; the relative importance of OHS vis-à-vis these other performance determinants cannot be established from the current design. Fourth, both independent and dependent variables were self-reported through the same questionnaire instrument administered in a single session, creating potential common method bias that may artificially inflate observed correlations.

5.3 Suggestions and Directions for Future Research

Future research should address the identified limitations through several methodological and substantive extensions. Longitudinal panel designs collecting OHS and performance data at multiple time points would enable examination of the temporal dynamics of the OHS performance relationship, including whether OHS improvements lead performance improvements (or vice versa) and how rapidly performance effects manifest following OHS interventions. Multi-site comparative studies across PT Telkom Indonesia's regional units and divisions would establish whether the OHS performance relationships identified here generalize across the organization or reflect East Jakarta-specific contextual conditions.

Substantively, future research should expand the performance model to incorporate additional determinants alongside OHS variables particularly work motivation, leadership style, organizational commitment, and digital competency to estimate the relative contribution of OHS to performance prediction within a more comprehensive framework. The moderating role of OHS in the motivation–performance or competency performance relationship represents a theoretically productive avenue that could integrate human capital theory more fully into the empirical model. Research examining specific OHS sub-dimensions particularly ergonomic and psychosocial health components in telecommunications office environments would provide more granular guidance for OHS investment prioritization. Finally, research incorporating objective performance indicators (sales achievement data, customer satisfaction scores, task completion rates) alongside subjective self-report measures would address the common method bias limitation and provide a more robust test of the OHS performance relationship.

Acknowledgement

The authors express sincere gratitude to the management and all participating employees of the SAS Division, PT Telkom Indonesia Witel East Jakarta, for their cooperation and willingness to participate in this study. The authors also thank the Faculty of Economics and Business at Universitas Bina Sarana Informatika for institutional support,

and acknowledge the constructive guidance of the supervising faculty throughout the research process.

Author Contributions

MM was responsible for the conceptualization, research design, data collection, and manuscript writing. SS contributed to data analysis, interpretation of results, and manuscript review and editing. Both authors approved the final version of the manuscript for submission.

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