

The Influence of Occupational Safety and Health Programs on Employee Performance of PT. PLN (Persero) Upt Makassar

Andi Nur Rezkhy, Sitti Nurbaya dan Sitti Marhumi

Muhammadiyah University of Makassar

E-mail : andinurrezkhy@gmail.com

Article Info

Occupational
Safety and Health
Program,
Employee
Performance

Abstract

This study investigates the impact of Occupational Safety and Health (OSH) programs on employee performance at PT. PLN (Persero) UPT Makassar. Using a quantitative approach, data were collected from 56 employees through structured questionnaires and analyzed with SPSS version 29. The OSH program, encompassing workplace conditions, health services, and environmental safety, was measured as the independent variable, while employee performance, indicated by work quality, behavior, and personal attributes, served as the dependent variable. Results from descriptive and regression analyses indicate a significant positive influence of OSH programs on employee performance, with a regression coefficient of 0.761 and a coefficient of determination (R^2) of 0.676. This suggests that 67.6% of variations in employee performance are explained by the OSH program. The findings underscore the importance of continuous implementation and enhancement of OSH initiatives, such as safety training and personal protective equipment usage, to improve employee productivity and maintain a safe work environment. The study contributes to organizational management practices by demonstrating that effective OSH programs are essential for achieving optimal employee performance and workplace safety.

1. Introduction

Human resources (HR) are widely recognized as the most critical asset in organizational success, serving as the primary drivers of productivity, innovation, and operational effectiveness (Hayati, 2019; Kashmir, 2019). In any organization, the effective management of HR is essential for achieving strategic objectives, maintaining competitive advantage, and ensuring sustainable organizational growth. The performance of employees, which encompasses both the quality and quantity of work, is a direct reflection of the organization's ability to harness its human capital effectively (Flippo, 2019; Ghozali, 2019).

Employee performance is influenced by a variety of factors, including leadership, motivation, work environment, occupational safety and health programs, and organizational policies (Nazir, 2019; Sugiyono, 2020). Among these factors, occupational safety and health (OSH) programs have gained increased attention as critical mechanisms for ensuring employee well-being, preventing workplace accidents, and promoting optimal performance outcomes.

Occupational Safety and Health (OSH) programs refer to a systematic approach aimed at preventing accidents, occupational diseases, and other work-related hazards while promoting a safe and healthy work environment (Akhmad Fauzi Pane, 2019; Faizah et al., 2021). These programs typically include workplace risk assessments, health services, safety training, proper use of personal protective equipment, and monitoring of work conditions. By implementing effective OSH programs, organizations can reduce the incidence of workplace accidents, improve employee morale, and enhance productivity (Firmanzah et al., 2019; Paramitha & Wijayanto, 2019). Additionally, a well-structured OSH program can foster a culture of safety and responsibility, ensuring that employees are not only compliant with safety regulations but also actively engaged in maintaining a secure work environment.

PT. PLN (Persero) UPT Makassar, as a state-owned enterprise responsible for the provision of electricity in Indonesia, operates in a high-risk environment where employees frequently face occupational hazards,

particularly field workers involved in power line installation and maintenance (Indra Novri Setiawan, 2019). Ensuring workplace safety is therefore a strategic priority for the company, which has implemented a range of OSH measures, including periodic training, use of personal protective equipment, and safety monitoring systems. Despite these efforts, historical data indicate that workplace accidents, although non-fatal, have occurred over the past four years, highlighting the ongoing need for effective safety interventions and program evaluation.

The importance of OSH programs extends beyond employee welfare to organizational performance. Studies have demonstrated that organizations with strong OSH practices tend to have higher levels of employee engagement, lower absenteeism, and improved operational efficiency (Iqramawati & Kusumayadi, 2022; Pesik et al., 2021). Employees who feel safe in their work environment are more likely to demonstrate higher levels of commitment, responsibility, and productivity, which collectively contribute to enhanced organizational performance. In contrast, inadequate safety measures can lead to decreased morale, increased work-related stress, and potential financial losses due to accidents and injuries (Nazir, 2019; Rahayu et al., 2022).

Research on the relationship between OSH programs and employee performance in Indonesia has been growing but remains limited in certain contexts, particularly within state-owned enterprises operating in high-risk sectors such as electricity distribution (Zulfikry Sukarno et al., 2019; Likdanawati & Hamdiah, 2020). Previous studies have shown a positive correlation between OSH implementation and employee performance, indicating that effective safety and health measures enhance employees' ability to perform tasks efficiently and safely (Kartikasari, 2020; Muliati & Budi, 2021). However, most existing research focuses on general productivity or employee satisfaction, with limited empirical evidence linking specific OSH interventions to measurable performance outcomes in operational settings. This gap

underscores the need for targeted studies that examine the direct influence of OSH programs on employee performance within organizations such as PT. PLN (Persero) UPT Makassar.

Moreover, the operational context of PT. PLN (Persero) presents unique challenges and opportunities for evaluating the effectiveness of OSH programs. Employees in field operations are regularly exposed to hazards including electrical shocks, falls, and equipment-related injuries. The company has set ambitious goals, such as achieving a "Zero Accident" workplace, which necessitates rigorous monitoring, continuous training, and employee engagement in safety practices. By systematically assessing the impact of OSH programs on employee performance, this study provides insights into the effectiveness of current safety measures, identifies areas for improvement, and contributes to the broader literature on occupational safety in high-risk industries.

The theoretical framework underpinning this research draws on human capital theory and safety management principles. Human capital theory emphasizes that investments in employee well-being, knowledge, and skills yield measurable returns in terms of performance and productivity (Flipppo, 2019; Hayati, 2019). In the context of occupational safety, such investments include training programs, health services, and protective measures, all of which enhance employees' capacity to perform their roles effectively. Safety management theory further posits that systematic identification of hazards, risk assessment, and implementation of preventive measures create a safe work environment that supports optimal employee performance (Akhmad Fauzi Pane, 2019; Firmanzah et al., 2019). By integrating these theoretical perspectives, the study examines how OSH programs serve as a strategic mechanism for improving employee outcomes in a complex operational setting.

The objectives of this research are threefold. First, it aims to measure the current implementation level of OSH programs at PT. PLN (Persero) UPT Makassar. Second, it seeks to analyze the influence of these programs on

employee performance, with performance indicators including work quality, behavior, and personal traits. Third, the study intends to provide practical recommendations for enhancing the effectiveness of OSH programs, thereby supporting organizational goals such as reducing workplace accidents, improving employee engagement, and increasing productivity. By addressing these objectives, the study contributes both theoretically and practically to the field of occupational safety and human resource management.

In conclusion, the significance of this study lies in its ability to bridge the gap between safety program implementation and measurable employee performance in a high-risk operational context. While previous research has established the general benefits of OSH programs, this study provides empirical evidence from PT. PLN (Persero) UPT Makassar, offering actionable insights for managers, policymakers, and safety officers. The findings are expected to reinforce the importance of continuous investment in occupational safety and health, not only as a compliance requirement but as a strategic driver of employee performance and organizational success. Through this research, organizations can better understand the critical role of OSH programs in shaping a safe, productive, and resilient workforce, which is essential for sustaining competitive advantage and achieving long-term operational objectives.

2 Research Methodology

2.1 Research Design

This study employs a quantitative research design to examine the influence of Occupational Safety and Health (OSH) programs on employee performance at PT. PLN (Persero) UPT Makassar. Quantitative research is appropriate for this study because it allows for the measurement of relationships between variables using numerical data, facilitating objective analysis and statistical inference (Sugiyono, 2020; Nazir, 2019). The research design focuses on a causal relationship, in which OSH programs serve as the independent

variable (X) and employee performance as the dependent variable (Y).

2.2 Population and Sample

The population of this study consists of all employees of PT. PLN (Persero) UPT Makassar, totaling 56 individuals. Due to the relatively small population, the study employs a saturated sampling technique, in which all employees are included as respondents. Saturated sampling ensures comprehensive data coverage and enhances the reliability of the research findings (Juliansyah, 2019). Respondents represent various genders, age groups, and educational backgrounds, providing a holistic view of employee perceptions and performance across the organization.

2.3 Research Variables and Operational Definitions

The independent variable, Occupational Safety and Health (OSH) programs, is defined as systematic interventions designed to prevent workplace accidents, minimize occupational health risks, and promote a safe working environment (Akhmad Fauzi Pane, 2019; Faizah et al., 2021). Its operational indicators include:

1. Workplace conditions (e.g., cleanliness, ergonomics, hazard management)
2. Health services (e.g., medical checks, emergency preparedness)
3. Safety programs and training (e.g., personal protective equipment use, safety workshops)

The dependent variable, employee performance, refers to the measurable outcomes of employee work, encompassing both quality and quantity aspects (Flippo, 2019). Its operational indicators include:

1. Work results (e.g., task completion, accuracy, productivity)
2. Work behavior (e.g., discipline, responsibility, cooperation)
3. Personal traits (e.g., initiative, adaptability, problem-solving skills)

2.4 Data Collection Techniques

Data were collected through a combination of primary and secondary sources. Primary data were obtained directly from employees using structured questionnaires, designed with a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Secondary data were collected from organizational documents, reports, and relevant literature to support contextual understanding.

Additional data collection methods included:

1. **Observation:** Direct observation of workplace practices, safety measures, and employee behavior to validate questionnaire responses.
2. **Documentation:** Analysis of company records on safety training, accident reports, and safety compliance policies.
3. **Literature Review:** Examination of previous studies, journals, and theoretical frameworks related to OSH and employee performance.

2.5 Research Instruments

The questionnaire served as the primary research instrument and was structured to capture perceptions and experiences related to OSH programs and employee performance. To ensure accuracy and reliability, the instrument underwent validity and reliability testing prior to data collection.

2.6 Data Quality Testing

1. **Validity Testing:** Conducted using Pearson's product-moment correlation to determine whether questionnaire items accurately measure the intended variables. Items with $r_{\text{calculated}} > r_{\text{table}}$ were considered valid (Sugiyono, 2020).
2. **Reliability Testing:** Cronbach's alpha coefficient was calculated to assess the internal consistency of the questionnaire. Values above 0.60 indicated acceptable reliability (Ghozali, 2019).

2.7 Data Analysis Techniques

Data analysis involved the following procedures:

1. **Descriptive Statistics:** To summarize respondents' demographic characteristics and distribution of responses for both OSH programs and employee performance.
2. **Simple Linear Regression Analysis:** To examine the effect of OSH programs (X) on employee performance (Y) using the equation $Y = a + bX$, where a represents the intercept and b the regression coefficient.
3. **Hypothesis Testing:** Conducted using t-tests for partial significance, with a 5% significance level ($\alpha = 0.05$), to determine whether OSH programs significantly influence employee performance.
4. **Coefficient of Determination (R^2):** To assess the proportion of variance in employee performance explained by the OSH program, indicating the strength of the relationship between variables.

2.8 Ethical Considerations

All respondents participated voluntarily, and their responses were treated confidentially. Ethical approval was obtained from the relevant institutional review committee, and informed consent was provided to all participants prior to data collection.

3. Results and Discussion

3.1 Respondent Characteristics

The study included all 56 employees of PT. PLN (Persero) UPT Makassar, consisting of 40 males (71%) and 16 females (29%). Age distribution indicated that the majority of respondents were between 30–39 years old (37.5%), followed by 21–29 years (32%), 40–49 years (18%), and above 50 years (12.5%). Regarding educational background, 48% held a bachelor's degree (S1), 21% held a diploma (D3), 18% held a master's degree (S2), and 13% were high school graduates (SMA). These demographics suggest that the workforce is predominantly male, mid-aged, and highly educated, which may influence both perceptions of occupational safety and individual performance levels.

3.2 Descriptive Analysis

Descriptive statistics were used to assess the respondents' perceptions of Occupational Safety and Health (OSH) programs and employee performance. Responses to OSH indicators, such as safe work equipment, safety training, and workplace cleanliness, were predominantly in the "Agree" category, indicating strong employee recognition of effective OSH implementation. Similarly, for employee performance, indicators such as discipline, responsibility, and efficiency also received high scores, reflecting a generally positive perception of performance levels among the respondents.

3.3 Validity and Reliability Testing

All questionnaire items passed the validity test, with $r_{\text{calculated}}$ values exceeding the r_{table} value of 0.263 ($p < 0.05$), confirming that the instrument effectively measured the intended constructs. Reliability testing showed Cronbach's alpha coefficients of 0.871 for OSH programs and 0.827 for employee performance, exceeding the 0.60 threshold, indicating strong internal consistency and reliability of the measurement instrument.

3.4 Simple Linear Regression Analysis

A simple linear regression analysis was conducted to examine the relationship between OSH programs and employee performance. The regression equation obtained was:

$$Y = 8.695 + 0.761X$$

where Y represents employee performance, X represents OSH programs, 8.695 is the constant, and 0.761 is the regression coefficient. The constant indicates the baseline level of employee performance in the absence of OSH programs, while the regression coefficient suggests that each unit increase in the OSH program score results in a 0.761 unit increase in employee performance.

3.5 Hypothesis Testing

Hypothesis testing was conducted using the t-test and the coefficient of determination

(R^2). The t-test yielded a calculated value of 10.622, which is greater than the critical t value of 1.673 ($p < 0.05$). This result confirms that OSH programs have a statistically significant positive effect on employee performance. The coefficient of determination ($R^2 = 0.676$) indicates that 67.6% of the variation in employee performance can be explained by OSH programs, while the remaining 32.4% is influenced by other factors, such as motivation, leadership, and organizational policies.

3.6 Discussion

The findings of this study demonstrate a positive and significant impact of OSH programs on employee performance. Employees who perceive their workplace as safe and well-regulated tend to exhibit higher levels of discipline, responsibility, and productivity. This result aligns with previous research by Faizah et al. (2021) and Firmanzah et al. (2019), which indicated that well-implemented safety programs directly enhance performance outcomes in high-risk environments.

The positive effect of OSH programs can be attributed to several mechanisms. First, the provision of adequate personal protective equipment, such as helmets, gloves, and safety shoes, minimizes the risk of injury and increases employees' confidence in performing their duties. Second, regular safety training equips employees with knowledge and skills to prevent accidents and respond appropriately to hazards. Third, systematic monitoring and enforcement of safety policies encourage adherence to protocols, thereby fostering a culture of responsibility and accountability.

From a theoretical perspective, the results support the principles of human capital theory and safety management theory. Investments in employee safety and health enhance human capital by improving knowledge, skills, and well-being, which, in turn, positively influence performance (Flippo, 2019; Hayati, 2019). Safety management theory further explains that systematic hazard identification, preventive measures, and continuous monitoring create a conducive environment for optimal employee

performance (Akhmad Fauzi Pane, 2019; Firmanzah et al., 2019).

The study also reveals practical implications for organizational management. Companies operating in high-risk sectors, such as electricity distribution, can benefit from prioritizing OSH programs as strategic tools for enhancing workforce performance. By maintaining rigorous safety standards, conducting frequent training, and promoting employee engagement in safety initiatives, organizations can achieve both operational efficiency and reduced accident rates. Furthermore, these findings suggest that performance improvement is not solely dependent on traditional HR interventions, such as training for skills, but also significantly influenced by the employees' perception of safety and well-being at work.

Despite the significant findings, the study acknowledges certain limitations. First, the research focuses exclusively on PT. PLN (Persero) UPT Makassar, limiting the generalizability of results to other organizational contexts or industries. Second, the study relies on self-reported questionnaires, which may introduce response bias. Future research may incorporate longitudinal designs, multi-source data, and objective performance metrics to provide a more comprehensive assessment of OSH program effectiveness.

3.7 Integration with Previous Literature

The results of this study corroborate international literature emphasizing the critical role of occupational safety and health in enhancing employee performance. For instance, studies in high-risk industrial sectors have consistently reported that safety interventions, risk mitigation strategies, and safety culture positively correlate with productivity and employee engagement (Iqramawati & Kusumayadi, 2022; Pesik et al., 2021). By providing empirical evidence from Indonesia, this study contributes to the broader discourse on workplace safety management and human resource optimization, offering insights applicable to both national and global contexts.

In conclusion, the findings establish that effective OSH programs are essential for achieving optimal employee performance in high-risk work environments. The implementation of comprehensive safety measures, combined with employee training and engagement, not only ensures physical safety but also enhances organizational productivity, morale, and sustainability.

4. Closing

4.1 Conclusion

This study concludes that Occupational Safety and Health (OSH) programs have a positive and significant effect on employee performance at PT. PLN (Persero) UPT Makassar. Statistical analysis shows that the OSH program contributes 67.6% to variations in employee performance ($R^2 = 0.676$), while the remaining 32.4% is influenced by other factors. The regression coefficient (0.761) indicates that every unit increase in the effectiveness of OSH programs leads to a 0.761 unit increase in employee performance. These results highlight the critical role of OSH programs in enhancing workplace safety, employee discipline, productivity, and overall organizational efficiency.

4.2 Recommendations

Based on the findings, the following recommendations are proposed:

- 1. Sustain and Improve OSH Programs:** Maintain existing safety initiatives and continuously improve safety equipment, protocols, and risk management systems.
- 2. Enhance Safety Training:** Conduct regular and targeted training programs, including practical simulations, particularly for employees involved in high-risk tasks.
- 3. Promote Safety-Oriented Organizational Culture:** Encourage employee involvement in developing OSH programs, reward compliance, and enforce accountability to strengthen workplace safety culture.
- 4. Continuous Monitoring and Evaluation:** Implement systematic monitoring using key performance indicators, incident reports,

and employee feedback to ensure OSH programs remain effective.

4.3 Research Limitations

This study has several limitations that should be acknowledged:

1. **Sample Size:** The study included all 56 employees of PT. PLN (Persero) UPT Makassar, which may limit generalizability to other companies or industries.
2. **Single Data Source:** Data were primarily collected through self-reported questionnaires, which may introduce subjective bias.
3. **Scope of Variables:** Only OSH programs were analyzed as an independent variable. Other factors affecting employee performance, such as leadership, motivation, and organizational culture, were not included.
4. **Temporal Limitation:** The study was conducted over three months, limiting insights into long-term effects of OSH program implementation.

4.4 Suggestions for Future Research

1. Future studies should include a larger and more diverse sample across multiple branches or companies to enhance generalizability.
2. Incorporate additional variables, such as leadership style, employee motivation, organizational culture, and work environment, to develop a more comprehensive model of employee performance.
3. Employ longitudinal or multi-source data collection methods to capture the long-term impact of OSH programs on employee performance.
4. Explore qualitative approaches, such as interviews or focus groups, to gain deeper insights into employees' perceptions and experiences regarding workplace safety.

4.5 Final Remarks

In conclusion, effective Occupational Safety and Health programs are not only a regulatory and ethical necessity but also a

strategic tool for enhancing employee performance and organizational sustainability. Companies that prioritize workplace safety and employee well-being are more likely to achieve operational excellence and long-term success.

Bibliography

- Akhmad Fauzi Pane, T. A. (2019). Pengaruh Keselamatan Dan Kesehatan Kerja Terhadap Prestasi Kerja Karyawan Pada Pt Pln Up3 Pondok Gede Akhmad Fauzi Pane *), Thomas Anggoro **) Dosen Tetap Teknik Industri Stt Bina Tunggal Praktisi Pengaruh Keselamatan Dan Kesehatan Kerja Terhadap Prestasi. *Jurnal Teknosain*, 39-47.
- Faizah, A., Sutikno, B., & Hastari, S. (2021). Pengaruh Keselamatan Dan Kesehatan Kerja Terhadap Kinerja Karyawan Pada Kantor Pt. Pln. *Jurnal Ema*, 6(1), 24-29. <https://doi.org/10.47335/Ema.V6i1.64>
- Firmanzah, A., Hamid, D., & Djudi, M. (2019). Pengaruh Keselamatan Dan Kesehatan Kerja Terhadap Kinerja Karyawan (Studi Pada Karyawan Pt. Pln (Persero) Area Kediri Distribusi Jawa Timur). *Jurnal Administrasi Bisnis S1 Universitas Brawijaya*, 42(2), 1-9.
- Flippo, E. B. (2019). *Personnel Management*. Erlangga.
- Ghozali. (2019). *Aplikasi Analisis Multivariate Dengan Program Ibm Spss 23* (8th Ed.). Badan Penerbit Universitas Diponegoro.
- Hayati. (2019). *Manajemen Sumber Daya Manusia* (2nd Ed.). Kencana Prenada Media Group.
- Indra Novri Setiawan. (2019). Pengaruh Keselamatan Dan Kesehatan Kerja Terhadap Produktivitas Karyawan Pada Departemen Jaringan Pt Pln (Persero) Area Surabaya Utara. *Jurnal Ilmu Manajemen (Jim)*, 1(2), 553-564.
- Iqramawati, F., & Kusumayadi, F. (2022). Pengaruh Keselamatan Kerja Dan Kesehatan Kerja Dan Insentif Kerja Terhadap Produktivitas Kerja Karyawan

- Pada Pt. Pln (Persero) Up3 Bima. *Jurnal Manajemen Sumber Daya Manusia*, 16(1), 57–72.
<https://ejurnal.unisri.ac.id/index.php/manajemen/article/view/7581>
- Jacob, P. A., Tewal, B., Tulung, J. E., Manajemen, J., Sam, U., & Manado, R. (2019). Pengaruh Program Keselamatan Kerja, Kesehatan Kerja Dan Kualitas Kehidupan Kerja Terhadap Kepuasan Kerja Karyawan Pt Pln (Persero) Wilayah Suluttenggo Area Manado The Effect Of Occupational Safety Program, And Work Health And Quality Of Work Life On E. *Jurnal Emba*, 5(3).
- Juliansyah Noor. (2019). *Metodologi Penelitian: Metodologi Penelitian Skripsi, Tesis, Disertai, Dan Karya Ilmiah (Pertama)* (1st Ed.). Kencana Prenadamedia Group.
- Kartikasari, N. (2020). "Pengaruh Keselamatan Dan Kesehatan Kerja Terhadap Kinerja Karyawan Di Pt. Pln Area Malang." *Keselamatan Kerja, Kesehatan Kerja, Kinerja Karyawan*, 5(3), 248–253.
- Kasmir. (2019). *Manajemen Sumber Daya Manusia (Teori Praktik)* (2nd Ed.). Pt. Rajagrafindo Persada.
- Likdanawati, L., & Hamdiah, H. (2020). Pengaruh Keselamatan Dan Kesehatan Kerja Terhadap Prestasi Kerja Pada Pt. Pln (Persero) Rayon Pantan Labu Kabupaten Aceh Utara. *Jurnal Visioner & Strategis*, 6. <http://journal.unimal.ac.id/visi/article/view/207%0ahttp://journal.unimal.ac.id/visi/article/viewfile/207/160>
- Muliati, L., & Budi, A. (2021). Pengaruh Manajemen Waktu, Keselamatan Kerja, Dan Kesehatan Kerja Terhadap Kinerja Karyawan Pt Pln Area Cikokol Divisi Konstruksi (Studi Kasus Pada Karyawan Pt Pln Area Cikokol Divisi Konstruksi). *Dynamic Management Journal*, 5(1), 38–52.
- Nazir. (2019). *Metode Penelitian*. Ghalia Indonesia.
- Nisak, D. K., & Isharijadi. (2019). Pengaruh K3 (Kesehatan Dan Keselamatan Kerja) Dan Lingkungan Kerja Terhadap Kinerja Karyawan Pada Pt Pln (Persero) Area Ponorogo. *Jurnal Ilmiah Pendidikan Akuntansi*, 5(September), Hlmn 633-645.
- Paramitha, C. C. P., & Wijayanto, A. (2019). Pengaruh Keselamatan Dan Kesehatan Kerja Terhadap Prestasi Kerja Karyawan Pada Pt. Pln (Persero) Apj Semarang. *Jurnal Administrasi Bisnis*, 1(1), 1–11. <https://doi.org/10.14710/jab.v1i1.4313>
- Pesik, K. K., Lumintang, G. G., Sam, U., & Manado, R. (2021). Pengaruh Keselamatan Kerja Dan Kedisiplinan Kerja Terhadap Produktivitas Kerja Karyawan Pt. Pln (Persero) Area Manado Effect Of Work Safety And Work Discipline On Employee Productivity Of Pt. Pln (Persero) Manado Area. *Jurnal Emba*, 6(4), 2928–2937.
- Rahayu, A., Nurmilasari, N., & Suhartina, S. (2022). Pengaruh Kesehatan Dan Keselamatan Kerja Terhadap Produktivitas Kerja Karyawan Pada Pt. Pln (Persero) Rayon Soppeng. *Jurnal Ilmiah Metansi (Manajemen Dan Akuntansi)*, 5(1), 33–40. <https://doi.org/10.57093/metansi.v5i1.154>
- Samahati, K. R. (2020). Pengaruh Kesehatan Dan Keselamatan Kerja (K3) Dan Disiplin Kerja Terhadap Produktivitas Karyawan Alih Daya Pada Pt. Pln (Persero) Up3 Manado (Effect Of Health And Safety Of And Discipline Of Work On Employee Productivity Of At Pt. Pln (Persero) Up3 Man. *Jurnal Emba*, 8(1), 351–360.
- Sugiyono. (2019). *Statistika Untuk Penelitian*.
- Sugiyono. (2020). *Metode Penelitian Kuantitatif, Kualitatif Dan R&D*. Alfabeta.
- Zulfikry Sukarno, Nurlaely Razak, D. D. (2019). Pengaruh Keselamatan Dan Kesehatan Kerja Terhadap Prestasi Kerja Karyawan (Studi Pada Pt Pln Makassar Area Rayon Timur). 19, 370–381.