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Original Article

Effect of Occupational Health and Safety Best Practices on Employee Performance in Private Companies in Rwanda

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ABSTRACT

The study titled "Effect of Occupational Health and Safety Best Practices on Employee Performance in Rwanda: Case of Sulfo Rwanda" explores the relationship between occupational health and safety (OHS) best practices and employee performance. The research aimed to investigate six key factors: the impact of safety training and awareness, incident reporting and investigation, safe work practices, regular inspections and audits, the use of personal protective equipment (PPE), and overall employee performance. Using an explanatory mixed-methods research design, the study relied on a population sample determined by the Yaman formula and employed a convenience sampling technique. Data was collected through questionnaires, interviews, and document reviews, with descriptive and inferential statistical methods used for analysis. The findings revealed a significant positive relationship between all examined safety practices and employee performance at Sulfo Rwanda. Specifically, safety training and awareness, incident reporting, safe work practices, regular inspections and audits, and the use of PPE all contributed positively to enhancing employee performance. The study concluded that the implementation of robust occupational health and safety practices significantly improves employee performance. Based on the findings, the researcher recommended that Sulfo Rwanda's management establish health and safety committees with qualified staff, conduct regular workplace inspections, and actively involve workers in the inspection process to further improve safety standards.

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INTRODUCTION

Occupational Safety and Health (OHS) programs are crucial for preventing workplace accidents and occupational diseases by identifying hazards, reducing risks, and promoting a safe and healthy work environment. The goal is to improve safety, reduce injury-related costs, and enhance employee well-being, which ultimately leads to increased productivity and organizational success. However, the implementation of OHS practices in Africa has been inadequate. According to the International Labour Organization (ILO), approximately 63,900 work-related fatalities and 1.56 million disabling injuries occur annually across 54 African countries, highlighting the urgent need for improved safety measures (ILO, 2017).

Unlike developed nations, where OHS frameworks and trained professionals are common, many African countries face a severe shortage of skilled OHS personnel. As a result, businesses often rely on external consultants for safety training, which can be inconsistent and insufficient (Vignoli, Punnett, & Depolo, 2018). In countries like Nigeria, South Africa, and Kenya, traditional lecture-based training is still widely used, although it is increasingly complemented by e-learning and video tools (Olutuase, 2018). Despite these efforts, workers in high-risk industries such as mining, agriculture, and manufacturing continue to face hazardous working conditions and frequent accidents.

Research indicates that effective OHS programs improve working conditions, reduce absenteeism, and enhance employee performance (Australian National Commission for Health and Safety, 2017). However, many African businesses prioritize profitability over health and safety (Rantanen et al., 2016). Poor sanitation, including a lack of clean water and proper sanitation facilities, contributes to diseases like malaria and diarrhoea, further emphasizing the need for stronger OHS practices (Katsakiori et al., 2016).

The World Health Organization (WHO) and other reports indicate that African countries face significant challenges in enforcing OHS standards due to inadequate infrastructure, lack of trained professionals, and insufficient awareness of OHS rights (WHO Regional Office for Africa, 2016; Muchiri, 2018). In Kenya, research by Jane (2018) suggests that when workers' health and safety are prioritized, performance improves, reinforcing the importance of a safe working environment.

In Rwanda, workplace fatalities increased sharply between 2007 and 2012, despite efforts to address occupational hazards (Rwanda Profile, 2012). Hakiza (2022) argues that poor OHS practices harm workers and lead to financial losses for businesses. Although the Rwanda Labour Act mandates safe working conditions, many businesses fail to implement effective measures. Investing in OHS not only improves safety but also reduces costs and promotes a positive safety culture (National Safety Council, 2022).

In conclusion, strengthening OHS practices in African countries like Kenya and Rwanda is vital to reducing workplace injuries and fatalities, ensuring long-term business success, and improving overall organizational outcomes.

MATERIALS AND METHODS

Research design

The study used an explanatory sequential mixed-methods design, combining quantitative and

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qualitative approaches to strengthen the findings' validity (Creswell & Creswell, 2017). Quantitative research assessed OHS best practices at Sulfo Rwanda, including incident reporting, safe work practices, PPE, and training. Employee performance was evaluated across task, contextual, and adaptive dimensions. Multiple linear regression was applied to examine the relationship between OHS practices and performance. Semi-structured interviews with key informants provided additional qualitative insights to complement the quantitative data.

Data collection and analysis

To assess the impact of Occupational Health and Safety (OHS) practices on employee performance in Rwandan private companies, a structured questionnaire was distributed to 79 employees at Sulfo Rwanda, selected through convenience sampling. The questionnaire included both closed-ended questions and open-ended interviews with top managers. Document reviews supplemented the primary data to provide a deeper understanding of Sulfo Rwanda's OHS practices. Data analysis utilized SPSS, employing descriptive statistics to measure central tendency (mean, percentage) and variability (standard deviation). Inferential statistics, including multiple linear regression, were used to explore the relationship between OHS practices and employee performance. The regression model was designed to quantify the impact of OHS factors on employee outcomes.

$Y=\beta0+\beta1X1+\beta2X2+\beta3X3+\beta4X4+\beta5X5+eY = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + eY=\beta0+\beta1X1+\beta2X2+\beta3X3+\beta4X4+\beta5X5+e$

Where:

- YYY = Employee performance
- $\beta0\beta_0\beta0$ = Constant (Y-intercept)
- $\beta i\beta_i\beta i$ (for i = 1, 2, 3, 4, 5) = Coefficients for the independent variables
- XiX_iXi (for i = 1, 2, 3, 4, 5) = Independent variables:
    - X1X_1X1 = Safety training and awareness
    - X2X_2X2 = Incident reporting
    - X3X_3X3 = Safe work practices
    - X4X_4X4 = Regular inspection and audit
    - X5X_5X5 = Personal protective equipment

e = Error term, assumed to be normally distributed with a mean of zero and constant variance. To interpret, a low p-value (typically below 0.05) indicates statistical significance, suggesting that the corresponding independent variable is a meaningful predictor of employee performance. Conversely, a high p-value suggests that the variable may not significantly impact the dependent variable. R-squared represents the proportion of variance in employee performance explained by the independent variables, with higher values indicating a better model fit. Adjusted R-squared, which accounts for the number of predictors, is more reliable when comparing models with different numbers of variables.

The results of the analysis were further examined using ANOVA (Analysis of Variance) to determine if there were significant differences in OHS practices across different groups. In interpreting the ANOVA results, key metrics such as the F-statistic, p-value, and group means were considered to assess the impact of OHS practices on employee performance. This comprehensive approach allowed the researcher to draw informed conclusions about the relationship between OHS best practices and employee performance in a hypothesis-driven manner.

RESULTS AND DISCUSSION OF FINDINGS

This study assessed the impact of occupational safety and health programs on employee performance at Sulfo-Rwanda, focusing on safety awareness, training, incident reporting, work

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practices, inspections, and PPE usage. Using a Likert scale and standard deviation analysis, the findings reveal employee consensus on safety measures and their influence on performance.

Occupational Health and Safety Best Practices

Safety training and awareness in Sulfo Rwanda Industries

The study sought to assess safety training and awareness in Sulfo Rwanda Industries. The respondents were asked where agreed or disagreed with the statements regarding safety training and awareness in Sulfo Rwanda Industries. The results are presented in Table 1 below.

Table 1: Safety training and awareness in Sulfo Rwanda

	Mean	St. dev
Employees are provided with adequate training to understand proper working methods.	4.63	.98
Sulfo Rwanda educates employees about a healthy work style and lifestyle.	4.44	1.02
Relevant laws and regulations are explained during training.	4.39	1.03
Information about safety and health provisions or outcomes is shared openly with employees.	4.32	1.19
There is an ongoing education program on health and safety.	4.48	.90
Overall mean	**4.45**	**1.02**

Source: Primary data, 2024

The results in Table 1 indicate that Sulfo Rwanda offers comprehensive safety training, with employees demonstrating a strong understanding of proper work methods, as reflected in a mean score of 4.63 and a standard deviation of 0.98. This low standard deviation suggests that most employees share similar views on the effectiveness of the training. Additionally, employees are educated on maintaining a healthy work style, with a mean score of 4.44 and a standard deviation of 1.02, indicating a slightly wider variation in responses but still a generally high level of agreement. Training on relevant laws and regulations received a mean score of 4.39, with a standard deviation of 1.03, showing a moderate degree of consistency in responses.

The company also ensures that safety and health provisions are well-communicated, achieving a mean score of 4.32 and a standard deviation of 1.19. This indicates a slightly higher variability in responses, suggesting that communication effectiveness may vary among employees. The overall mean score of 4.45 and a standard deviation of 1.02 highlight the generally positive and consistent employee perceptions of the safety training and awareness programs. A standard deviation of less than 1 typically indicates a high level of agreement among participants.

Findings suggest that Sulfo Rwanda has successfully implemented health and safety programs, which are widely perceived as effective, with strong support from management, as affirmed by employee interviews. This aligns with Armstrong's (2006) assertion that health and safety training is essential for skill acquisition and accident prevention (Burke & Sarpy, 2018).

Incident Reporting in Sulfo Rwanda

The study sought to assess the incident reporting in Sulfo Rwanda. The respondents were asked whether they agreed or disagreed with the statements regarding Safety training and awareness in Sulfo Rwanda. The results are presented in Table 2 below:

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Table 2: Incident Reporting in Sulfo Rwanda

	Mean	St. dev
Sulfo Rwanda has persons trained for incident investigation procedures.	4.85	.62
My department has an effective incident reporting procedure that is known by employees	4.61	.91
Management provides an appropriate remedy for addressing accidents occurrence in my department.	4.27	1.20
The provision of health and safety incident materials had been a cost burden on the organization	4.56	1.01
Overall mean	**4.57**	**0.93**

Source: Primary data, 2024

The results in Table 2 indicate that Sulfo Rwanda has a well-established incident investigation system. With a high mean score of 4.85 and a low standard deviation of 0.62, this suggests that employees have a strong and consistent understanding of incident investigation procedures. Additionally, employees are well informed about the company's incident reporting procedures, with a mean of 4.61 and a standard deviation of 0.91, reflecting general agreement but slightly more variability in responses.

Management's efforts in addressing accidents are also recognized, as evidenced by a mean score of 4.27 and a standard deviation of 1.20, indicating moderate agreement but with some variation in perceptions. The provision of health and safety incident materials, identified as a financial burden, scored a mean of 4.56 with a standard deviation of 1.01, showing a slight variability in views about its financial impact.

Overall mean score of 4.53 and a standard deviation of 0.93 demonstrate strong agreement and a relatively low variability in responses, indicating that employees perceive the incident reporting system as effective. All aspects had mean scores above 3.5, showing broad consensus on the system's effectiveness. Interviews confirmed that cooperation between management and employees is crucial to maintaining a safe work environment (Cooper, 2019; Tetrick & Winslow, 2020).

Safe work practices used by Sulfo Rwanda

The study aimed to assess the safe work practices implemented at Sulfo Rwanda. Respondents were asked to indicate their agreement or disagreement with statements related to these practices. The results are presented in Table 3 below:

Table 3: Safe work practices used by Sulfo Rwanda

	Mean	St. dev
In Sulfo Rwanda office is a well-ventilated and comfortable workspace and furniture	4.37	1.10
Sulfo Rwanda provides adequate and clean toilet facilities in my office	4.46	1.02
The temperature in the office is appropriate and comfortable	4.73	.71
The work environment is hygienic and healthy in Sulfo Rwanda	4.59	.88
There is an adequate power supply in my office	4.27	1.31
Safety and security facilities are always available at Sulfo Rwanda	4.19	1.20
Overall mean	**4.43**	**1.03**

Source: Primary data, 2024

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The results in Table 3 reflect the positive impact of safe work practices at Sulfo Rwanda. Employees rated the office environment favourably, noting its ventilation and comfortable furniture, with a mean score of 4.37 and a standard deviation of 1.10. This suggests general agreement but with some variability in individual opinions. The company also provides clean and adequate toilet facilities, receiving a mean of 4.46 and a standard deviation of 1.02, indicating consistent views but slightly more variation.

The office temperature scored exceptionally high, with a mean of 4.73 and a low standard deviation of 0.71, indicating strong consensus on its comfort. The work environment is also viewed as hygienic and health-conscious, reflected by a mean of 4.59 and a standard deviation of 0.88, showing generally consistent opinions with minor differences.

Employees also reported an adequate power supply (Mean = 4.27, St. Dev = 1.31) and reliable safety and security facilities (Mean = 4.19, St. Dev = 1.20), though these areas showed slightly more variability. The overall mean score of 4.43 and standard deviation of 1.03 suggest that safe work practices are widely implemented and well-regarded across the organization, with minimal variability in responses. Interviews confirmed that these practices have contributed to a reduction in safety-related incidents, aligning with Sembe and Ayuo's (2017) assertion that prioritizing health and safety boosts productivity and returns on investment. Similarly, research by Johnson et al. (2020) supports these findings, noting that organizations with well-established safety protocols tend to experience fewer incidents and higher overall employee satisfaction, which in turn enhances operational efficiency.

Regular inspection audit used by Sulfo Rwanda

The study aimed to evaluate the regular inspection and audit practices at Sulfo Rwanda. Respondents were asked to indicate their level of agreement or disagreement with statements related to these practices. The results are presented in Table 4 below:

Table 4 Regular inspection audit used by Sulfo Rwanda

	Mean	St. dev
Health and Safety audits are conducted regularly.	4.03	1.40
Recommendations of the audits are implemented to improve health and safety.	4.24	1.15
Audit reports are shared with all the employees.	4.22	1.18
The inspections help in developing health and safety strategies and initiatives that are tailored to the organization's specific needs.	4.49	.93
Safety audits are conducted by safety advisors, HR specialists managers and employee representatives.	4.77	.53
Sulfo Rwanda conducts regular inspections at the workplace.	4.59	.86
Overall mean	**4.39**	**1.00**

Source: Primary data, 2024

The results from Table 4 highlight the importance of regular health and safety inspection audits at Sulfo Rwanda. Respondents reported that audits are conducted regularly, with a mean score of 4.03 and a standard deviation of 1.40. This suggests a general consensus but with significant variability in individual opinions about the frequency of audits. Recommendations from these audits are actively implemented, as shown by a mean score of 4.24 and a standard deviation of 1.15, indicating a relatively high level of agreement, though with some variation in responses.

Audit reports are shared with all employees, with a mean score of 4.22 and a standard deviation of 1.18, suggesting that while most employees agree on this practice, there is moderate variability in how effectively this communication occurs.

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Additionally, audits help in developing tailored health and safety strategies for the organization, with a mean of 4.49 and a lower standard deviation of 0.93, indicating more consistent views on the effectiveness of these strategies.

A high mean score of 4.77 and a low standard deviation of 0.53 indicate strong consensus on the involvement of a diverse team in conducting the audits, including safety advisors and employee representatives. Overall, the high mean score of 4.39 and a standard deviation of 1.00 reflect strong support for regular inspection audits within the company. These results align with Larcher & Sohail (2009) and Okoye (2016), who emphasized the value of workplace inspections in improving safety and reducing incidents.

Personal protective equipment used by Sulfo Rwanda

The study aimed to evaluate the use of personal protective equipment (PPE) at Sulfo Rwanda. Respondents were asked to indicate their level of agreement or disagreement with statements related to the use of PPE. The results are presented in Table 5 below:

Table 5: Personal protective equipment used by Sulfo Rwanda

	Mean	St. dev
Sulfo employees are aware of the PPEs available to them	4.49	.93
PPEs selected are appropriate for the level of protection desired	4.57	.90
PPEs available offer comfort and fit for necessary employee protection	4.37	1.08
Employees are adequately trained on the use of PPEs	4.49	1.01
Managers prioritize PPE fit, follow manufacturer guidelines, and ensure regular maintenance, replacement, and training on usage and disposal	4.18	1.26
Overall mean	**4.42**	**1.03**

Source: Primary data, 2024

The results in Table 5 indicate that Sulfo Rwanda employees are well-informed about the personal protective equipment (PPE) available to them, with a mean score of 4.49 and a standard deviation of 0.93. This suggests strong agreement among employees, with relatively low variability in their responses. The PPE provided is considered appropriate for the level of protection needed, with a mean of 4.57 and a standard deviation of 0.90, indicating that most employees agree on its adequacy. However, there is slightly more variability regarding the comfort and fit of the PPE, reflected in a mean score of 4.37 and a standard deviation of 1.08.

The majority of employees (74.7%) strongly agree that they are adequately trained in PPE use, with a mean of 4.49 and a standard deviation of 1.01. However, a smaller percentage (12.7%) disagreed, suggesting some inconsistency in training experiences. Respondents also indicated that managers prioritize PPE fit, maintenance, and proper disposal, with a mean of 4.18 and a standard deviation of 1.26, showing moderate variability in responses.

The overall mean score of 4.42 and a standard deviation of 1.03 suggest general agreement but also some variability in responses. These findings align with Steve (2021), who emphasizes the importance of PPE in preventing workplace accidents, especially when other safety measures are insufficient. Contrary to Steve's (2021) emphasis on PPE as a primary safety measure, Kumar and Patel (2022) argue that holistic safety culture, including training and behavioural safety, is just as crucial in reducing workplace accidents, especially in high-risk environments.

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Level of employee performance at Sulfo-Rwanda

The study aimed to assess employee performance at Sulfo Rwanda, focusing on three key aspects: task performance, adaptive performance, and contextual performance. The results are presented in Tables 6, 7, and 8 below.

Level of task performance of Sulfo Rwanda

The study aimed to assess the level of task performance at Sulfo Rwanda. Respondents were asked to indicate their agreement or disagreement with statements related to task performance at the company. The results are presented in Table 6 below:

Table 6: Level of task performance of Sulfo Rwanda

	Mean	**St. dev**
I maintain a high standard of work	3.97	1.15
I am capable of handling my assignments without much supervision.	4.39	1.02
I am very passionate about my work	3.99	1.25
I know how to handle multiple assignments to achieve organizational goals	3.62	1.22
I complete my assignments on time.	4.54	1.00
Overall mean	**4.10**	**1.12**

Source: Primary data, 2024

The results in Table 6 show that employees at Sulfo Rwanda maintain high work standards, with a mean score of 3.97 and a standard deviation of 1.15, indicating general agreement with some variability in individual responses. Employees are capable of handling tasks with minimal supervision, with a high mean of 4.39 and a standard deviation of 1.02, suggesting consistent views on their autonomy at work. Their passion for their work was also noted, with a mean score of 3.99 and a higher standard deviation of 1.25, reflecting some variability in enthusiasm across respondents.

Employees are skilled in managing multiple tasks, achieving organizational goals (Mean = 3.62, St. Dev = 1.22), and maintaining timeliness in assignments (Mean = 4.54, St. Dev = 1.00). The overall mean score of 4.10 and standard deviation of 1.12 indicate high task performance and strong agreement among employees. However, the variability in responses, reflected in the standard deviations, suggests some differences in individual perceptions. These findings align with Sylvana (2022), linking job satisfaction with motivation and performance. Similarly, Green and Hayes (2021) found that individual perceptions of job satisfaction are often influenced by a range of factors, including leadership, work environment, and personal expectations, which can contribute to variability in responses and impact motivation.

Level of adaptive performance of Sulfo Rwanda

The study aimed to assess the level of adaptive performance at Sulfo Rwanda. Respondents were asked to indicate their agreement or disagreement with statements related to adaptive performance within the company. The results are presented in Table 7 below:

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Table 7: Level of adaptive performance of Sulfo Rwanda

	Mean	St. dev
I am able to perform well to mobilize collective intelligence for effective teamwork.	3.76	1.32
I could manage change in my job very well whenever the situation demands.	4.46	1.12
I can handle effectively my work team in the face of change	4.48	1.07
I always believe that mutual understanding can lead to a viable solution in an organisation	4.71	.60
I am very comfortable with job flexibility	4.53	1.02
I used to cope well with organizational changes from time to time.	4.54	1.00
I extend help to my co-workers when asked or needed	4.53	1.02
Overall mean	**4.43**	**1.02**

Source: Primary data, 2024

The results in Table 7 indicate that Sulfo Rwanda employees exhibit strong adaptive performance. They are able to mobilize collective intelligence for effective teamwork, with a mean score of 3.76 and a standard deviation of 1.32, suggesting a moderate level of agreement but some variability in responses. Employees handle job changes effectively, with a mean of 4.46 and a standard deviation of 1.12, showing general agreement with some variation in individual perceptions. They manage work teams well during organizational changes (Mean = 4.48, St. Dev = 1.07), further highlighting their adaptability.

Employees strongly believe that mutual understanding leads to viable solutions, with a high mean score of 4.71 and a low standard deviation of 0.60, indicating strong consensus and minimal variability in responses. They are also comfortable with job flexibility (Mean = 4.53, St. Dev = 1.02) and are willing to extend help to coworkers (Mean = 4.53, St. Dev = 1.02), showing a positive attitude toward collaboration.

The overall mean score of 4.43 and standard deviation of 1.02 suggest that adaptive performance is highly rated, with consistent responses across all aspects. These findings align with Sembe and Ayuo (2017), who emphasize the link between employee health, safety practices, and productivity, noting that strong health and safety measures contribute to positive business outcomes.

Level of contextual performance of Sulfo Rwanda

The study aimed to assess the level of contextual performance at Sulfo Rwanda. Respondents were asked to indicate their level of agreement or disagreement with statements regarding the company's contextual performance. The results are presented in Table 8 below:"

Table 8: Level of contextual performance of Sulfo Rwanda

	Mean	St. dev
I extend help to my co-workers when asked or needed	4.33	1.13
I love to handle extra responsibilities	4.56	1.02
I extend my sympathy and empathy to my co-workers when they are in trouble	4.37	1.08
I actively participate in group discussions and work meetings	4.49	1.01
I used to praise my co-workers for their good work	4.44	1.02
I used to share knowledge and ideas with my team members	4.39	1.03
I used to maintain good coordination among fellow workers	4.33	1.08
Overall mean	**4.41**	**1.05**

Source: Primary data, 2024

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The results in Table 8 demonstrate a high level of contextual performance at Sulfo Rwanda. Employees reported a strong willingness to help coworkers (Mean = 4.33, St. Dev = 1.13) and a passion for taking on extra responsibilities (Mean = 4.56, St. Dev = 1.02). They also showed empathy and support for colleagues (Mean = 4.37, St. Dev = 1.08) and actively participated in group discussions (Mean = 4.49, St. Dev = 1.01). Employees frequently praised coworkers for good work (Mean = 4.44, St. Dev = 1.02) and shared knowledge within teams (Mean = 4.39, St. Dev = 1.03).

The overall average Likert scale score of 4.41 reflects strong agreement among respondents, but the standard deviation of 1.05 indicates some variation in individual responses. These findings suggest that while most employees exhibit high contextual performance, there is some difference in how strongly they perceive these behaviours.

These results align with Pritchard (2021), who highlights that effective performance management improves both employee engagement and organizational outcomes, reinforcing the positive role of Sulfo Rwanda's Occupational Health and Safety Committees. Similarly, Davis and Thompson (2020) emphasize that while performance management is crucial for employee engagement, it must be accompanied by strong communication and recognition practices to truly enhance organizational outcomes.

Relationship between Occupational Health and Safety Practices and Employee Performance in Sulfo Rwanda

This section presents inferential statistical results, using correlation analysis to assess relationships between independent variables (safety measures) and employee performance, followed by regression analysis to evaluate their impact.

Correlation Analysis

The Pearson correlation coefficient (r) measures the linear relationship between two variables. A positive r indicates a positive correlation, while a negative r shows a negative correlation, with 0 indicating no relationship.

Table 9: Correlations coefficients

		X_1	X_2	X_3	X_4	X_5	Y
X1=Safety training and awareness	Pearson Correlation	1					
X2=Incident reporting	Pearson Correlation	.625**	1				
X3=Safe work practices	Pearson Correlation	.370**	.619**	1			
X4=Regular inspection and audit	Pearson Correlation	615**	.608**	.318**	1		
X5=Personal protective equipment	Pearson Correlation	.670**	.447**	.233*	.558**	1	
Y=Employee performance at Sulfo - Rwanda	Pearson Correlation	.724**	.609**	.470**	.648**	.684**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	

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

*. Correlation is significant at the 0.05 level (2-tailed).

The study conducted a correlation analysis using the Pearson product-moment correlation coefficient. The results in Table 9 show that all predictor variables had a significant positive relationship with employee performance. Safety training and awareness had a high positive correlation (r = 0.724) with employee performance. Incident reporting showed a moderate positive correlation (r = 0.609), while safe work practices exhibited a weak positive correlation (r = 0.470). Regular inspection and audit, as well as personal protective equipment, both had moderate positive correlations (r = 0.648). Additionally, the technological environment had a high positive correlation (r = 0.767) with employee performance at Sulfo Rwanda.

Multiple Linear Regression Models

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This section presents the regression results for each independent variable, using regression analysis to determine the linear relationship between variables, enabling predictions and causal inferences. The regression coefficient (R^2) shows how well the data fits the model, with values closer to 1 indicating a better fit. The analysis assesses the causal effects of predictor variables on the outcome variable, evaluating statistical significance. The aim is to identify significant predictors and estimate their impact on the dependent variable, with findings from ANOVA and multiple regression analyses.

Table 4.10: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.852[a]	.726	.707	.22984

a. Predictors: (Constant), X5=Personal protective equipment, X3=Safe work practices, X4=Regular inspection and audit, X1=Safety training and awareness, X2=Incident reporting

The R-squared value in Table 10 is 0.726, indicating that Occupational Health and Safety (OHS) accounts for 72.6% of the variation in employee performance at Sulfo Rwanda. The remaining 27.4% can be attributed to other factors. This highlights the significant role of OHS in enhancing employee performance.

Table 4.11: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.216	5	2.043	38.676	.000[b]
	Residual	3.856	73	.053		
	Total	14.072	78			

a. Dependent Variable: Y=Employee performance at Sulfo – Rwanda
b. Predictors: (Constant), X5=Personal protective equipment, X3=Safe work practices, X4=Regular inspection and audit, X1=Safety training and awareness, X2=Incident reporting.

Analysis of variance (ANOVA) was used to assess the significance of the regression model. A p-value of 0.05 or less was considered statistically significant. The findings in Table 11 show that the regression model had a p-value of 0.000, indicating strong statistical significance in predicting the effect of external OHS practices on employee performance at Sulfo Rwanda.

The ANOVA results show that the F-critical value (5, 73) was 2.33, while the F-calculated value was 38.676, indicating that the F-calculated is greater than the F-critical. This confirms a significant positive linear relationship between OHS practices and employee performance, suggesting that changes in OHS lead to meaningful changes in performance. The p-value of 0.000 further supports the model's goodness of fit.

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Table 4.12: Regression coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
1 (Constant)	.427	.127		3.362	.000
X1=Safety training and awareness	.124	.034	.319	3.647	.000
X2=Incident reporting	.244	.087	.280	2.818	.006
X3=Safe work practices	.143	.033	.153	4.333	.000
X4=Regular inspection and audit	.210	.078	.234	2.706	.008
X5=Personal protective equipment	.366	.069	.453	5.303	.000

a. Dependent Variable: Y=Employee performance at Sulfo – Rwanda

Employee performance in Sulfo Rwanda = $0.427+0.124X_1+ 0.244X_2+0.143X_3+0.210X_4 +0.366X_5$

The regression analysis of the study shows that when all factors—safety training and awareness, incident reporting, safe work practices, regular inspections and audits, and personal protective equipment (PPE)—are held constant, employee performance at Sulfo Rwanda is predicted to be 0.427.

The results indicate that each unit change in safety training and awareness (X1) increases employee performance by 0.124 units, with a statistically significant p-value of 0.000, highlighting its positive impact. Similarly, incident reporting (X2) increases performance by 0.244 units with a significant p-value of 0.000, suggesting it positively affects performance. The effect of safe work practices (X3) is also positive, with a 0.143-unit increase in performance and a p-value of 0.000. Furthermore, regular inspections and audits (X4) increase performance by 0.210 units, with a statistically significant p-value of 0.008, confirming their positive impact on performance. PPE (X5) had the strongest influence, with performance increasing by 0.366 units per unit change in PPE usage, supported by a highly significant p-value of 0.000.

In conclusion, all the independent variables positively and significantly affect employee performance at Sulfo Rwanda. These findings align with Hakiza and Singh (2022), who emphasized the role of health and safety practices, including risk management, in enhancing performance. Additionally, Williams and Harris (2021) assert that comprehensive safety programs, including training, reporting systems, and audits, significantly reduce workplace hazards and improve overall performance.

Hypothesis Testing

Hypothesis testing in this study was conducted using multiple linear regression. The acceptance or rejection criteria were based on the p-value: if the p-value is less than 0.05, the null hypothesis (H0) is rejected, while if the p-value is greater than 0.05, H0 is accepted.

Hypothesis 1**:** Safety training and awareness have no effect on employee performance at Sulfo Rwanda. Regression results in Table 4.13 show a coefficient of $\beta1 = 0.124$ and a p-value of 0.000, which is less than 0.05. Therefore, H0 is rejected, and the hypothesis is disapproved. This means safety training and awareness have a positive and significant effect on employee performance at Sulfo Rwanda.

Hypothesis 2: Incident reporting and investigation have no effect on employee performance at Sulfo-Rwanda. The regression coefficient for incident reporting ($\beta2$) is 0.244, with a p-value of 0.006, which is also less than 0.05. Thus, H0 is rejected, and the hypothesis is disapproved. Incident

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reporting and investigation positively and significantly affect employee performance.

Hypothesis 3: Safe work practices have no effect on employee performance at Sulfo Rwanda. The regression coefficient for safe work practices (β3) is 0.143, with a p-value of 0.000. Since the p-value is less than 0.05, H0 is rejected, and the hypothesis is disapproved. Safe work practices have a positive and significant effect on employee performance.

Hypothesis 4**:** Regular inspection and audit have no effect on employee performance at Sulfo Rwanda. The regression coefficient for regular inspections (β4) is 0.210, with a p-value of 0.008. With a p-value below 0.05, H0 is rejected, and the hypothesis is disapproved. Regular inspections and audits positively impact employee performance.

Hypothesis 5: Personal protective equipment (PPE) has no effect on employee performance at Sulfo-Rwanda. The regression coefficient for PPE (β5) is 0.336, with a p-value of 0.000, which is less than 0.05. Hence, H0 is rejected, and the hypothesis is disapproved. PPE has a positive and significant effect on employee performance.

In conclusion, all hypotheses were rejected, confirming that safety training, incident reporting, safe work practices, regular inspections and audits, and PPE all have a positive and significant impact on employee performance at Sulfo Rwanda.

STUDY LIMITATIONS

Focus on One Organization: The present study focuses solely on **SULFO RWANDA** as a case study. While this approach allows for in-depth analysis, it has limitations. The primary constraint is the limited generalizability of the findings. Because the study examines only one organization, it may not be possible to apply the conclusions to other companies or organizations, even those with similar characteristics to Sulfo Rwanda.

Convenience Sampling Concern: Although efforts were made to address the lack of representativeness in the sample, such as increasing the number of respondents to reduce sampling error, the use of convenience sampling remains a limitation. Despite these measures, convenience sampling still poses a risk of bias, as it may not adequately reflect the broader population, which affects the external validity of the study.

PRACTICAL APPLICATION

Improving Health and Safety at SULFO RWANDA**:** The findings of this study provide valuable insights for enhancing occupational health and safety at Sulfo Rwanda**.** Improvements can be achieved through various practices, including safety training, fostering a culture of incident reporting, conducting regular inspections and audits, and ensuring the consistent use of personal protective equipment (PPE)**.**

Establishment of Health and Safety Committees: The study reveals that health and safety committees do not currently exist at Sulfo Rwanda. This finding serves as a call to action, urging the company and other organizations to establish such committees to enhance safety governance and promote proactive risk management.

Policy and Programs Development: The study's findings can also motivate SULFO RWANDA and other companies and organizations to develop or refine health and safety policies and programs. By creating or updating these frameworks, organizations can foster a safer, more supportive work environment that contributes to improved employee engagement, job satisfaction, and overall performance.

CONCLUSION AND RECOMMENDATIONS

Conclusions

Based on the findings, it is clear that Sulfo Rwanda has adopted several key occupational health and safety (OHS) programs that positively impact employee performance. While employee performance is a continuous and adaptable process,

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the company has made efforts to integrate OHS practices across all levels. However, some OHS programs remain underdeveloped or only moderately implemented.

The study established that well-implemented OHS programs, including safety training, incident reporting, safe work practices, regular inspections, and the provision of personal protective equipment, significantly enhance employee performance. A safe, hygienic, well-ventilated, and noise-reduced working environment fosters higher productivity. However, the company still needs to improve its hazard prevention strategies to further enhance overall productivity.

The study also emphasizes the critical role of management's full commitment to safety as the cornerstone of any successful OHS program. Employees perform best when they feel safe and supported, reinforcing the need for continuous improvement in OHS practices at Sulfo Rwanda.

Recommendations

Based on the findings, the following recommendations are made:

Enhance OHS Training**:** Management should invest in comprehensive OHS training for both new and existing employees, creating a culture of safety awareness across the organization. All new hires should undergo OHS induction training, while continuous OHS programs should be designed to equip employees with the necessary knowledge and skills to work safely.

Improve Workplace Inspections**:** The company should establish dedicated health and safety committees composed of qualified personnel. Regular workplace inspections should be conducted, with active employee involvement to gather feedback and improve safety practices.

Promote Safety Awareness**:** Regular workshops, seminars, and educational materials should be used to foster safety consciousness among employees. These initiatives should include clear communication of health and safety policies and practices.

Focus on Prevention: OHS programs should focus on primary prevention, aiming to design workplaces and environments that are inherently safe. Continuous improvement in safety standards must be promoted, ensuring that policies are updated in line with new scientific, social, and technical developments.

Enhance Communication: The management should ensure that workplace inspection reports are communicated effectively to guide improvements in safety practices.

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