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## Assessing the Effectiveness of Health and Safety Practices for Laboratory Personnel in Biological Science Institutions

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### ABSTRACT:

This study investigates the effectiveness of health and safety communication at Hitachi Energy Private Limited and to measure the quality and effectiveness of the health and safety training provided to employees also to examine employee's experiences with health and safety in the organization. To evaluate employee satisfaction with the overall health and safety -conditions and training program in the organization. To identify the management's enforcement of health and safety concerns and policies. The researcher adopted descriptive study and the sample size of the study is 130. The sampling technique is Convenience sampling. This study aims to ensuring the effectiveness of health and safety measures for employees is paramount for organizational success and employee well-being.

**Keywords:** Employee Satisfaction, Health and Safety Communication, Organization

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### 1.1 Introduction

Human resources professionals play a key role in ensuring employee health and safety, as they know the workplace, the employees and their job demands. While human resources professionals are not expected to know the technical aspects of workplace health and safety, they should know when and how to use existing resources to respond to employee concerns. In many organizations, health and safety responsibilities are within the human resources department. In order to meet these responsibilities, human resources professionals must

Understand the health and safety responsibilities of employers, managers, supervisors, and employees within the organization. Implement personnel management policies to ensure that everyone in the workplace is aware of his/her responsibilities. Establish effective ways of meeting health and safety responsibilities; and ensure that employees fulfil their health and safety responsibilities as outlined in the organizational policies and programs

## **2.1 Review of Literature: -**

**2.1.1 Title: Rethinking occupational health and safety principles—a systems perspective**  
**Bikram R. Pandey, Bikram R. Pandey (25 Mar 2024): Rethinking occupational health and safety principles—a systems perspective, Journal of the Royal Society of New Zealand, DOI: 10.1080/03036758.2024.2333555 Published online: 25 Mar 2024.**

A work system is told by several other systems and their dynamics. The opinions and conduct at different system situations are crucial to system dynamics and the relations and interconnections between these systems. opinions and conduct at one system position can have varying degrees of impact and influence over the other. An apparent display of similar impacts is the configuration of work systems and their issues. Occupational health and safety are one of the important system issues. still, the opinions and conduct at other system situations have a significant impact on plant health and safety threat configuration and operation.

**2.1.2 Title: Workplace accident risk analysis using the bowtie method in the construction industry: a literature review. Deva Fajrisa, Widodo Hariyono, Sulistyawati Journal edu Healt Volume 15, Number 01, 2024, DOI 10.54209/eduhealth.v15i01 ESSN 2808-4608 (Online) <https://ejournal.seaninstitute.or.id/index.php/healt>**

The impacts involve various situations of injuries up to losses, with mitigation sweets including the use of particular Protective outfit( PPE) and pieces- scar supervision. Analysis of the findings through tables and plates presents constantly arising common risks. Detailed findings on the topmost risks, vinelike girder collapse and workers falling from heights, give a comprehensive overview of risks, consequences, and mitigation sweets.

**2.1.3 Title: Examining the effectiveness of health and safety committees and representatives: A review Milgate, Nadine | Innes, Ev | O'Loughlin, Kat Work, vol. 19, no. 3, pp. 281-290, 2002**

This paper presents the findings of a review of the literature and identifies the factors that are considered to impact on the effectiveness of plant health and safety panels and representatives. Several factors are described as being fundamental to the effective performance of panels and representatives. These factors include management commitment, communication, training and information, union involvement, the structure of an association, commission processes and the involvement of professional experts. Recommendations are made for unborn exploration to be conducted to test the current anecdotal substantiation and hypotheticals associated with the operation and effectiveness of health and safety panels.

**2.1.4 Title: Occupational health and safety management in organizations: A review Michael Zanko, Patrick Dawson Zanko, Michael and Dawson, Patrick: Occupational health and safety management in organizations:**

**A review 2012, 328-344. <https://ro.uow.edu.au/commpapers/2832>**

In examining the disquisition literature on occupational health and safety( OHS), this paper argues that the growth in the number of specialists in OHS has reacted in an emphasis on policy and exercise down from farther educational enterprises previously addressed by academics in the disciplines of psychology and sociology. The abstract and methodological limitations of

this specialist focus are mooted, and future disquisition openings are stressed, for which the authors argue that operation scholars embrace a range of methodological approaches.

**2.1.5 Title: Influence of communication determinants on safety commitment in a high-risk workplace: a systematic literature review of four communication dimensions**  
**Jamil Zara, Shahrina Md Nordin and Ahmad Shahrul Nizam Isha Zara J, Nordin SM and Isha ASN (2023) Influence of communication determinants on safety commitment in a high-risk workplace: a systematic literature review of four communication dimensions. Front. Public Health 11:1225995. doi: 10.3389/fpubh.2023.1225995**

This study considers safety communication, communication climate, and communication satisfaction to estimate their influence on safety commitment under occupational health and safety. This study identifies safety commitment issues and their underpinning factors, discussing measures for precluding and reducing accidents and incidents and pressing preventative measures for unborn exploration. It also signifies the variables impacting accident and incident rates.

### **3.1 Objectives of the Study:**

#### **3.1.1 Primary Objective**

- To assess the effectiveness of health and safety communication at Hitachi Energy Private Limited.
- To measure the quality and effectiveness of the health and safety training provided to employees.
- To examine employee's experiences with health and safety in the organization.
- To evaluate employee satisfaction with the overall health and safety -conditions and training program in the organization.
- To identify the management's enforcement of health and safety concerns and policies.

#### **3.1.2 Need for the study**

This study is to measure the quality and effectiveness of the health and safety training provided to employees and examine employee's experiences with health and safety in the organization and also to evaluate employee satisfaction with the overall health and safety -conditions and training program in the organization

### **4.1 Research Methodology: -**

Research Methodology is an organised approach to issue solving. It is an academic and applied endeavour to discover the proper methods for conducting research. Most importantly, research technique refers to the framework and procedures that scientists employ to precisely characterize, explain, and predict events in order to educate others about what they have done. It can also mean the study of knowledge acquisition strategies. Its objective is to offer the research work schedule.

#### **4.1.1 Research Design:**

A correlational design that is non-experimental will be used for this project. The researcher examined the connections between the preexisting data points in the questionnaire rather than adjusting any variables for this investigation. With the use of this design, we may investigate how communication techniques might affect clients' perceptions without really bringing about those changes.

#### **4.1.2 Descriptive Research Design:**

It is also known as satirical research design data and characteristics about the population being studied. These design research answer the question who, what, where, when and how, although the data description is actual, accurate, and systematic the research cannot describe what caused a situation, thus it cannot be used to create a causal relationship, where one variation affects another, the description is used for frequencies, averages and other statistical calculations.

#### **4.1.3 Descriptive Research:**

The study is descriptive in nature. It includes surveys and fact-finding enquiries of different kinds

#### **4.1.4 Population**

The study will cover on Hitachi Energy Private Limited employees in Chennai.

#### **4.1.5 Target Respondents**

The Target Respondents of this research are Hitachi Energy Private Limited employees

#### **4.1.6 Sample Design**

Sample design lays down all the details to be included in a sample. It is a definite plan for obtaining a sample from a given population. The sampling technique used was the convenience sampling

#### **4.1.7 Sampling method:**

The study applies Convenience sampling. It means when population elements are selected for inclusion in the sample based on the ease of access,

**Sampling area:** Samples are being taken in employees of "Hitachi Energy Private Limited"

#### **Sampling size:**

The sample size for the project is 130

#### **4.1.8 Data Collection Methods:**

There are mainly two types of data collection methods

Primary data • Secondary data

##### **4.1.8.1 Primary Data:**

Primary data is the data which is collected by researcher himself for the first time for the specific purpose and they original character. Primary data is collected but researcher data is collected by researcher for the problem that are currently being studied therefore, data obtained pertains specifically to the current consideration of sources are :1) Questionnaire

##### **4.1.8.2. Secondary Data:**

It is information collected from those data which have already been obtained from secondary sources. The data has not been collected for this purpose of this research however this information is already available in the market while the current research being sources are: 1) Magazine

#### **4.1.9 Statistical Tools**

##### **4.1.9.1 Chi-Square Test**

The Chi – Square test is a crucial test among several tests of significance developed by statisticians. As a non – parametric test, chi – square test are often used as:

(i) A test of goodness fit and

(ii) A test of independence.

**4.1.9.2 Correlation Test**

Correlation is employed to experiment relationships between quantitative variables or categorical variables. In other words, it's a measure of how things are connected. The research says how variables are correlated is named correlation analysis.

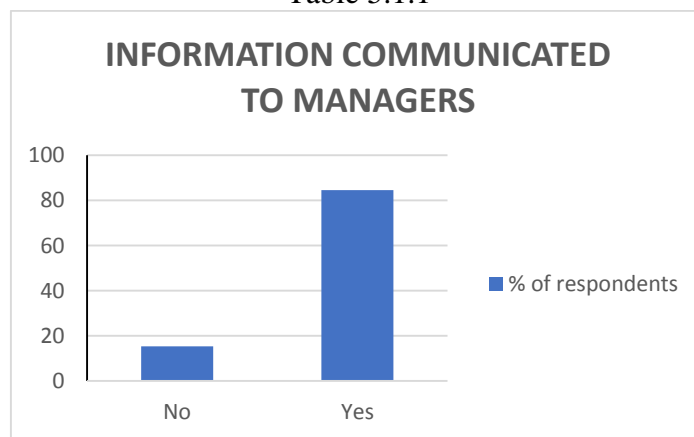
**5.1 Data Analysis and Interpretation**

**5.1.1 Is Information About Workplace Hazards and Risks Communicated to The Managers / Supervisors Responsible for Implementing Prevention and Control Measures?**

Information communicated to managers	No of Respondents	% of respondents
No	20	15.38461538
Yes	110	84.61538462
Total	130	100

(Source: Primary Data)

Table 5.1.1



**Chart 5.1.2**

**Inference**

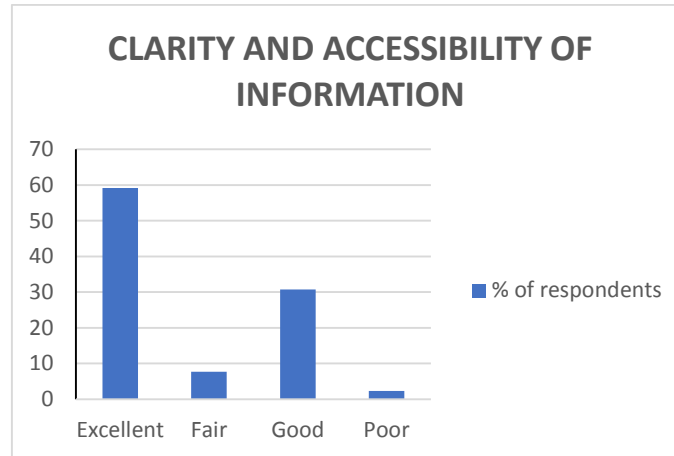
From the above table, it is inferred that 84.62% of the respondents agrees that the information about workplace hazards and risks are being communicated to the managers / supervisors while 15.38% states that the information is not being properly communicated to the managers / supervisors.

**5.1.2 Rate the Clarity and Accessibility of Health and Safety Information Provided by The Company?**

CLARITY AND ACCESSIBILITY OF INFORMATION	No of Respondents	% of respondents
Excellent	77	59.23076923
Fair	10	7.692307692
Good	40	30.76923077
Poor	3	2.307692308
Total	130	100

(Source: Primary Data)

Table 5.1.2



**Chart 5.1.2**

**Inference**

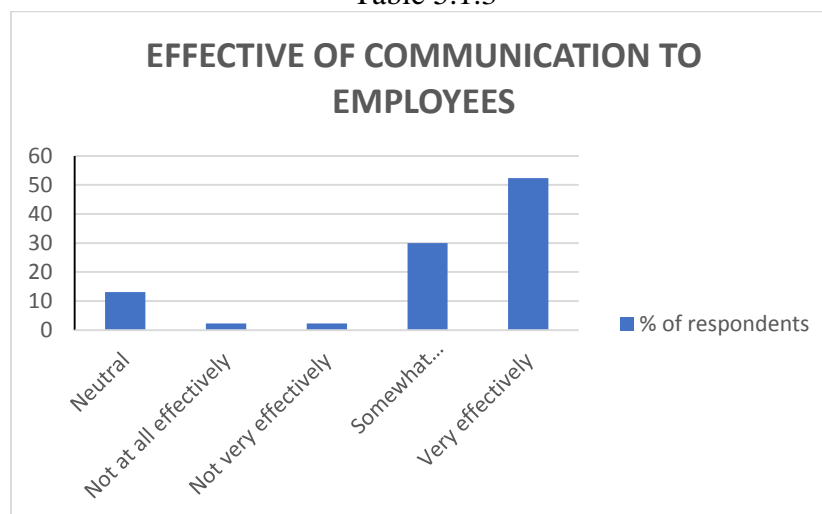
From the above table, it is inferred that 59.23% of the respondents said that the clarity and accessibility of health and safety information provided by the company was Excellent, 30.77% said to be Good, 7.69% said to be Fair and 2.31% said to be Poor.

**5.1.3 How Effectively Do You Think Health and Safety Practices Are Communicated to Employees at Hitachi Energy Pvt Ltd?**

EFFECTIVE OF COMMUNICATION TO EMPLOYEES	No of Respondents	% of respondents
Neutral	17	13.07692308
Not at all effectively	3	2.307692308
Not very effectively	3	2.307692308
Somewhat effectively	39	30
Very effectively	68	52.30769231
Total	130	100

(Source: Primary Data)

Table 5.1.3



**Chart 5.1.3**

**Inference**

From the above table, it is inferred that 52.30% of the respondents thinks that the health and safety practices are communicated very effectively, 30% thinks Somewhat effectively, 13.1% thinks on a Neutral category and 2.30% thinks Not very effectively and 2.30% thinks Not at all effective.

**6.1 Statistical Tools and Analysis**

**6.1.1 Correlation Analysis**

**Finding Overall Client Perception Using Spearman’s Rank Correlation**

To understand a client's general satisfaction with CRM practices

**Hypothesis Study**

**Null Hypothesis (HO):** There is no significant relationship between workplace hazards and risks **and** safety protocols and procedures

**Alternative Hypothesis(H1):** There is significant relationship between workplace hazards and risks **and** safety protocols and procedures

**Correlations**

Value		df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.854 <sup>a</sup>	4	.582
Likelihood Ratio	3.079	4	.545
Linear-by-Linear Association	.035	1	.851
N of Valid Cases	100		

**Interpretation**

From the above table, it is found that the correlation is significant at 0.01 level

**Inference**

From the above analysis the significant value is 0.582 which is greater than 0.05 (95% Confidence interval) so, we accept the Null Hypothesis. There is no significant relationship between workplace hazards and risks **and** safety protocols and procedures

**6.1.2 Correlation Analysis**

**Finding Overall Client Perception Using Spearman’s Rank Correlation**

To understand a client's general satisfaction with CRM practices

**Hypothesis Study**

**Null Hypothesis (HO):** There is no significant relationship between training on health and safety practices **and** health and safety training content offered by the company

**Alternative Hypothesis(H1):** There is significant relationship between training on health and safety practices **and** health and safety training content offered by the company **Correlations**

Value		df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.854 <sup>a</sup>	4	.582
Likelihood Ratio	3.079	4	.545

Linear-by-Linear Association	.035	1	.851
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### Interpretation

From the above table, it is found that the correlation is significant at 0.01 level

### Inference

From the above analysis the significant value is 0.582 which is greater than 0.05 (95% Confidence interval) so, we accept the Null Hypothesis. There is no significant relationship between training on health and safety practices **and** health and safety training content offered by the company

## 7.1 Findings, Suggestions and Conclusion

### 7.1.1 Findings

51.54% of the respondents receives information from management regarding health and safety practices at Hitachi energy private limited Daily

84.62% of the respondents are being aware of the emergency evacuation or safety protocols and procedures during a fire or other disaster

68.46% of the respondents feel that they are given the tools and resources that they need to do the job effectively

75.38% of the respondents received Basic training on health and safety practices at Hitachi energy

50.77% of the respondents said that the quality and effectiveness of the health and safety training that they received was excellent

83.1% of the respondents agree that the training adequately cover emergency response procedures

62.31% of the respondents said that the health and safety training content offered by the company was excellent

### 7.1.2 Suggestions

- ✓ The organization can develop and implement thorough training programs to educate employees about potential hazards, safety protocols, and emergency procedures. Regularly refresh and reinforce this training to ensure everyone stays up-to-date Conduct periodic customer satisfaction surveys to monitor progress and identify new areas for improvement.
- ✓ Conduct regular risk assessments to identify potential hazards in the workplace. Implement strategies to mitigate these risks, such as engineering controls, administrative controls, and personal protective equipment (PPE).
- ✓ Involve employees in the development and implementation of health and safety policies and procedures. Encourage their participation in safety committees, hazard identification, and safety improvement initiatives to foster a sense of ownership and responsibility
- ✓ Establish a culture of continuous improvement by regularly reviewing and updating health and safety policies and procedures based on feedback, lessons learned, and emerging best practices. Encourage innovation and adaptability to address evolving risks and challenges.
- ✓ Recognize and reward employees who actively contribute to maintaining a safe work environment. Acknowledge safety milestones, commend adherence to safety protocols, and incentivize safe behaviors to reinforce a positive safety culture.

### 7.1.3 Conclusion



In conclusion, ensuring the effectiveness of health and safety measures for employees is paramount for organizational success and employee well-being. By prioritizing comprehensive training, risk assessment, and clear communication channels, workplaces can mitigate risks and prevent accidents. Leadership commitment and employee involvement foster a culture of safety, while regular inspections and audits ensure compliance and continuous improvement. Promoting work-life balance and health initiatives further support employee health and resilience. Ultimately, recognizing and rewarding safe behaviors reinforces a positive safety culture. Together, these efforts create a workplace where employees feel valued, protected, and empowered to perform at their best, driving both productivity and morale.

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