IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A Study on Effect of Safety and Security of Employees on Employees Perfoamence.

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Abstract:

The Aim of the study is know about safety and security's impact on Employees Perfoamence in Railway Industry. Railway make big impact in whole world so they have to make sure safety for their employees at workplace. Railway always put their employees safety on top priority. safety and security is always important factor in any industry. in this Research paper shows effect of safety of employees on employees perfoamence. For this information Questionnarie survey has conducted from Railway employees. with sample size 82 this survey was conducted in Railway industry. for finding releationship among variables there is used chi-square test for categorieal question which included in questionnarie. this survey helps to understand how Railway give safety to their employees. And hoe employees safety and security make impact on employees perfoamence at their workplace in Railway Industry.

keywords: Railway Industry, Employees Safety, Employees Security, Employees Perfoamence.

1. Introduction:

Indian Railways (IR) are known to be the backbone and lifeline of our economy. India's railways network is the fourth largest in the world and spreads across thousands of kilometres, and covers almost the entire country. It transports both passengers and cargo over large distances and remains the most preferred mode of transportation of maximum Indians for its low cost and efficient operations.Indian Railways (IR) is a statutory body under the ownership of the Ministry of Railways, Government of India that operates India's national railway system. It manages the fourth largest national railway system in the world by size.

The railways in India are one of the biggest employers in the country and the 8th largest employer globally. India's railway network is the fourth largest in the world, behind the USA, China, and Russia. In terms of freight-carrying, it stands at number four in the world. There are over 7330 railway stations in the country. The Indian Railways is the country's lifeline. It is not just a passenger

and freight transporter, but also a social welfare organization, thanks to its extensive network spanning the length and width of India. The Indian Railways started operating on April 16, 1853. Indian Railways (IR) operates the world's fourth-longest rail network. It has a 1,23,236 kilometre network and around 21,000 trains that transport 23 million passengers and 3 million tonnes of freight per day.The Indian Railways is the country's lifeline. It is not just a passenger and freight transporter, but also a social welfare organization, thanks to its extensive network spanning the length and width of India. The Indian Railways started operating on April 16, 1853. Indian Railways (IR) operates the world's fourth-longest rail network. It has a 1,23,236 kilometre network and around 21,000 trains that transport 23 million passengers and 3 million tonnes of freight per day.

Companies operating in the market are introducing and integrating advanced technologies to rolling stock systems, power supply systems and information systems. Railway systems also include propulsion systems, auxiliary power supply systems, and air-conditioning systems among others. Adoption of advanced railway systems results in benefits such as reduced maintenance costs, greater safety, superior operational flexibility, improved reliability, and more predictable operation

Factors such as an increase in allocation of budget for development of railways, rise in demand for secure, safer, and efficient transport system, rise in use of public transport services as a solution to minimize traffic congestion, growth in demand for safety and compliance in rail transit, and increase in demand for passenger and freight capacity drive the growth of the railway system market.

Further, improvement in railway infrastructure in developing countries, technological advancements in autonomous rail and green transport, and integration of automation and advanced technologies in railway system offers remarkable growth opportunities for the players operating in the railway system market.The railway system market is segmented on the basis of type, end use, system type and region. By type, it is segmented into locomotives, metros, monorails, trams, freight wagons, passenger coaches, and others. By end use, the market is classified into passenger transit, and cargo train.Indian Railways has been able to move millions of people and also able to keep national supply chain running, despite facing the pandemic-related challenges, the Survey.Industry insiders say rail companies must implement better working hours for employees as “fatigue linked to poorly planned shift work patterns or long working hours can lead to human error, ill health, injury and reduced productivity,” says director of Working Time Solutions, Martin Gee who has worked in the transport and logistics sector to increase worker safety.Employees Safety and Security is top priority for Railway. employees safety make impact on their perfoamence at their workplace. employees safety have to be first motto for better work and productivity. preventing employees from accidents, health, mental health, injury, error, it make big impact at work in industry

2. Literature Review:

Ständer, D. I. T., Drewes, D. I. J., & Braun, D. W. I. I. (2006). This paper introduces an innovative operational and safety concept for railway operations employing virtual train-sets, defined as module trains connected by wireless informational links rather than conventional mechanical couplings. These module trains offer customizable transport solutions, allowing dynamic coupling and splitting outside stations, providing a level of flexibility previously only seen in road traffic. To establish this concept, an approval phase with a safety case is crucial. The paper proposes a safety analysis method based on condition events nets, demonstrating that operation with virtual train-sets is functionally as safe as conventional railway operation. The approach showcases the potential for modeling complex systems and offers a foundation for comparing existing and innovative systems in terms of operational safety.

Lutchenko, S. S., &Kopytov, E. Y. (2014, October). This study focuses on the critical role of communication systems in railway transport and their impact on the safety of answerable production processes (APP). Emphasizing the significance of technical maintenance and repair in ensuring the functionality and safety of these systems, the research underscores the need for timely interventions to prevent failures. Quantitative assessment of internal safety emerges as a pivotal factor in ensuring secure operation, highlighting the essentiality of this component in safe exploitation .

Batarlienė, N., &Jarašūnienė, A. (2014). The paper addresses accidents and incidents involving the transportation of hazardous materials by railway. It provides insights into how respondents perceive key risk factors in rail transport. Additionally, the analysis examines the correlation between annual enterprise losses due to accidents and losses attributed to other factors. The study underscores the need for precise control and regulation of dangerous goods transportation. While overall accidents have decreased, incidents involving hazardous materials persist, often due to non-compliance with traffic rules. The research emphasizes the importance of a comprehensive approach to risk reduction through a combination of measures, emphasizing prevention and awareness among all stakeholders in railway transport.

Drzewieniecka, B., & Nowak, M. (2018). This study provides a comprehensive analysis of optimizing transport security for dangerous goods, focusing on railway transport. It underscores the significant impact of transport damage on safety levels, particularly as railway wagons age. Through data analysis and simulation using the ALOHA program, the study illuminates the potential hazards of hazardous substance releases during rail transport incidents. The research highlights the need for standardized safety regulations, emphasizing the importance of compliance across EU countries. Additionally, it identifies key areas for corrective actions, including modernizing rolling stock and revising maintenance cycles. The study concludes with

a call for enhanced awareness and training to mitigate risks in transporting dangerous goods

Bulakh, M., Okorokov, A., &Baranovskyi, D. (2021, March). This study addresses the crucial concern of railway safety, emphasizing the global priority placed on ensuring secure transport operations. The assessment of traffic safety, particularly within internal railways, varies by country. Risks, encompassing technical and managerial elements, constitute a universal framework for interpreting safety in rail and other transportation modes. In the context of Ukrainian railway transport, risks are defined as the likelihood of losses during transportation, marked by intricate and diverse characteristics. This research introduces a comprehensive risk system tailored for evaluating railway traffic safety, encompassing general, local, technological, and technical risks, each quantitatively characterized. The system facilitates a nuanced assessment of real-time railway traffic safety, distinguishing between posteriori and priori risk values for enhanced predictive accuracy. This framework promises to significantly advance railway safety assessment.

Derahim, N., Arifin, K., Wan Isa, W. M. Z., Khairil, M., Mahfudz, M., Ciyo, M. B., ...&Samad, M. A. (2021).This study addresses critical Occupational Safety and Health (OSH) concerns in the urban rail transport industry, considering factors like declining accident rates, increasing passenger numbers, and technological pressures. Through a quantitative approach, a factor model of organizational safety climate is proposed to enhance safety and health in the Malaysian urban rail industry. Confirmatory factor analysis validates four key dimensions: safety communication, safety training, safety support system, and safety value. The developed model provides a valuable tool for rail management to assess organizational safety climate, ultimately improving worker safety performance and public confidence in the industry's operations. The study offers insights applicable to enhancing safety management practices in rail transport systems.

Shvetsov, A. V., Dronichev, A. V., Kuzmina, N. A., &Shvetsova, S. V. (2023). This study delves into the optimization of transport security by proposing the establishment of a unified operator for railway transport security in Russia. It systematically examines the distinctive features of ensuring transport security within the country's railway system. The research conclusively demonstrates that centralizing the responsibilities for transport security under a single operator can lead to a significant 66% reduction in the number of involved participants. This reduction is a crucial enhancement, promising improved management and reliability in the overall transport security system. The study offers valuable insights for streamlining security efforts in railway transportation.

3. Objective of the Study:

1. To study how to make the railway more reliable and safe for employees at work.

2. To Identify and analyze the potential safety and security risks that railway employees face in their work environments

4. Hypoothesis:

1. HO: There is no Significant Releationship between employees safety training and employees perfoamence.

H1: There is significant Releationship between employees safety training and employees perfoamence.

2. HO: There is no Releationship between employees safety and employees work enviourment.

H1: There is Releationship between employees safety and employees work enviourment

5. Research Methodology:

Research methodology refers to the systematic framework and procedures used by researchers to conduct a study. It encompasses the techniques, tools, and strategies employed to collect, analyze, and interpret data, as well as the overall approach to addressing the research questions or objectives. Research methodology helps ensure the validity, reliability, and ethical integrity of the research findings by providing a structured framework for designing, executing, and reporting the study. It includes elements such as the research design, data collection methods, sampling techniques, data analysis procedures, and ethical considerations. Overall, research methodology serves as the foundation upon which the research paper is built, guiding researchers through every stage of the research process.

5.1 Research Design:

Research design Make proper questionnaire to collect data that can measure the impact of employees safety on employee Performance. A descriptive research design follows in this Research. A survey by online questionnaire can be used to measure employee's safety and employees work perfoamence. The data can be used to understand how employees safety influence employee's work in their work**.** Data collection conducted from employees from Railway which give respnce and review on employees safety at Railway industry.

5.2 Source of Data:

Mainly two sources of data are used in data collection in Research. its Primary and secondary. this Research conduct primary data collection with questionnaire with questionnaire from the employees of Railway Industry. This data collect from the employees of Railway which give review on employees safety and their work at workplace.

5.3 Data Collection Method:

Data Collection can conduct with diffreny methods, wheter it is primary data collection and secondary data collection. various methods like questionnarie, interviews, survey, case study. This Research Paper use Questionnarie data collection method for collecting responce on employees safety in Railway Industry.

5.4 Population:

The Target population is respodants who give responce in our questionnarie. this Resesrch conduct responce on employees safety in Railway Industry. Here the target population is Railway employees (Vadodara Division) which is total respodants 82.

5.5 Sampling Method:

This Reseach paper include Random Sampling Method. Questionnarie was sended to employees via mobile survey. Questionnarie was randomly fill by employees of Railway.

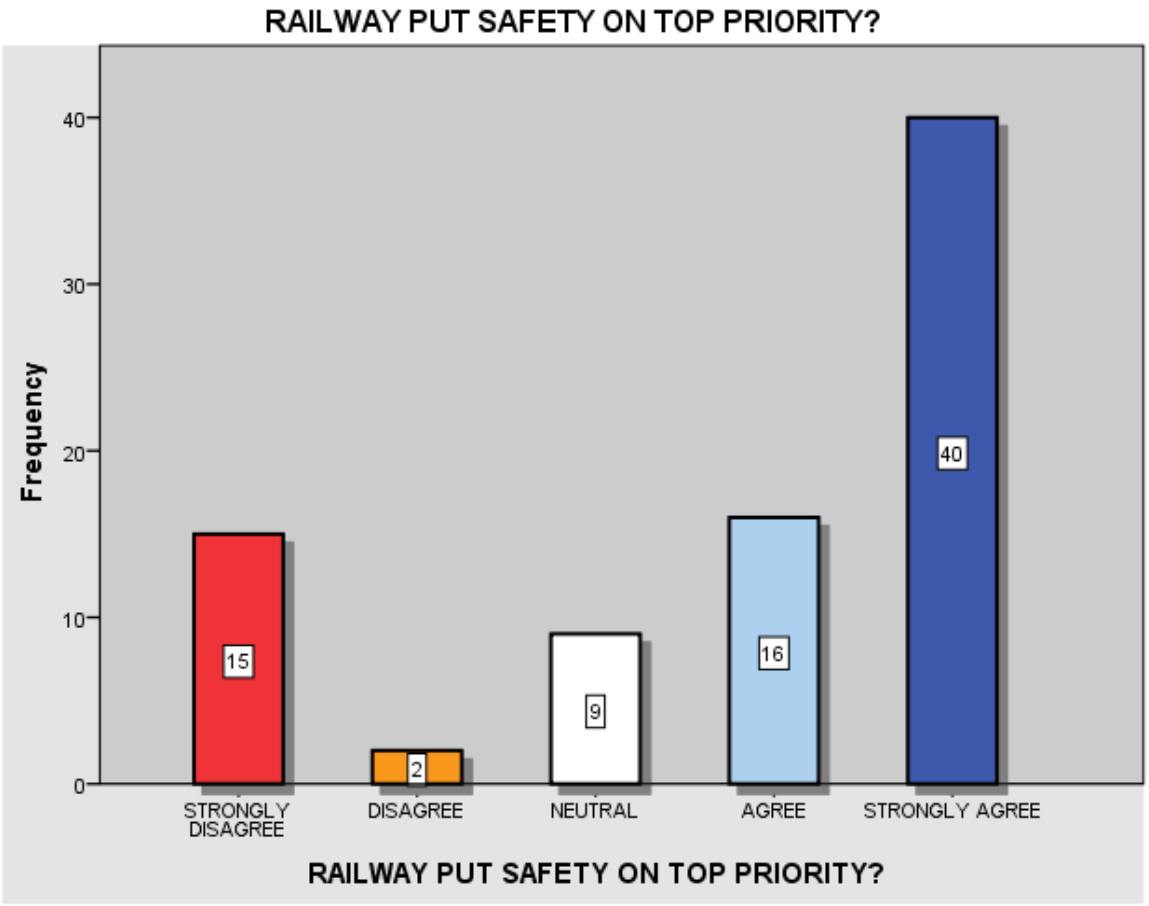
5.6 Data Collection Instrument:

Questionnaire method use for data collection in this study. A structured and predetermined list of questions intended to elicit answers from possible responders makes up a questionnaire. The researcher must gather statements from the literature and then transform them into questions in order to measure any attitude that helps to measure emplyees safety level and employees perfoamence in Railway.

6. Results:

Data analysis involves examining, cleaning, transforming, and modeling data to uncover meaningful insights and patterns. Interpretation, on the other hand, involves making sense of the analyzed data by drawing conclusions, making inferences, and communicating findings. Data analysis in research papers involves examining and interpreting data to validate hypotheses, identify patterns, support arguments, draw conclusions, generate insights, and enhance reproducibility, thereby strengthening the rigor and impact of the study.

Here, This Research paper conducted Descriptive Research. it used questionnarie for conduct primary data to measure employees safety and security in Railway Industry. Here the target Population is Employees of Railway Industry at Vadodra location. study of objective and hypothesis and questionnarie that finds this data conducted as categorieal data. Data which is collected that is quantitative data and primary data. Hypothesis showing relationship between two variables. Hypothesis 1 & 2 was tested using Chi-square test for analysis the safety and security's impact on employees perfoamence.This test for study of two variables that included in hypothesis. Chi- square stastic test compare categorial variables that helps in this Research that study on Employees safety and security in Railway Industry.



6.1 Data Analysis:

Here showing Data analysis of collected Data:

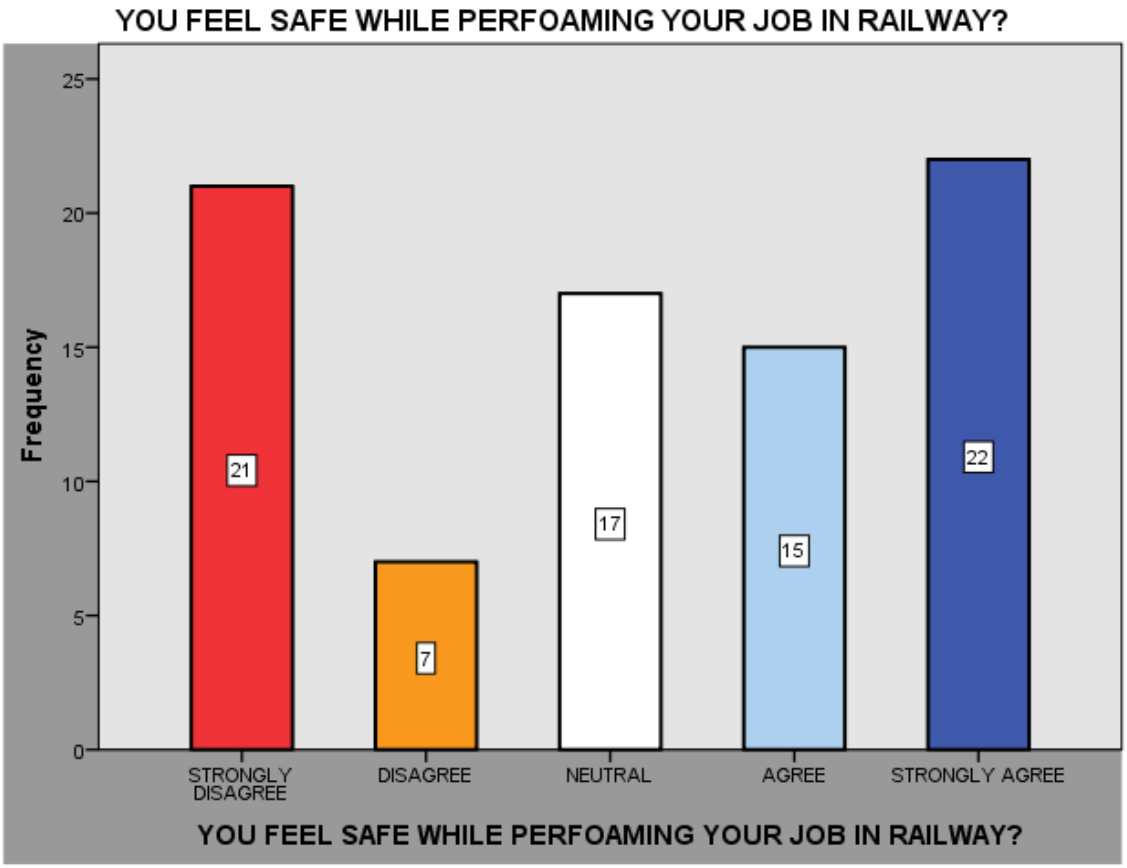
The data are collected on primary basis and quantitative data. Questionnarie made for collecting data from employees of data. Data analysis show that Data collection made by 82 employees of Railway Industry. where they gave their real response what they feel with their organzation.

SECTION:1

1. RAILWAY PUT SAFETY ON TOP PRIORITY?

- Here, define that out of 82 employees of railway 15 employees are completely disagree with the statement that railway put safety on priority. 2 employee are disagree and 9 employees are nutral with this statement. where 16 employeees arecompletely agree with statement. and 40 employees who are strongly agree with that railway put safety on their priority.

2. YOU FEEL SAFE WHILE PERFOAMING YOUR JOB IN RAILWAY?



- Here define that out of 82 employees 21 employees are strongly disagree with that they feel safe while perfoaming their job at railway. where 7 employees are disagree with that. 17 employees are neutral with this sateement. 15 employees agree with railways safety perfoamence. and 22 employees are strongly agree with statement.

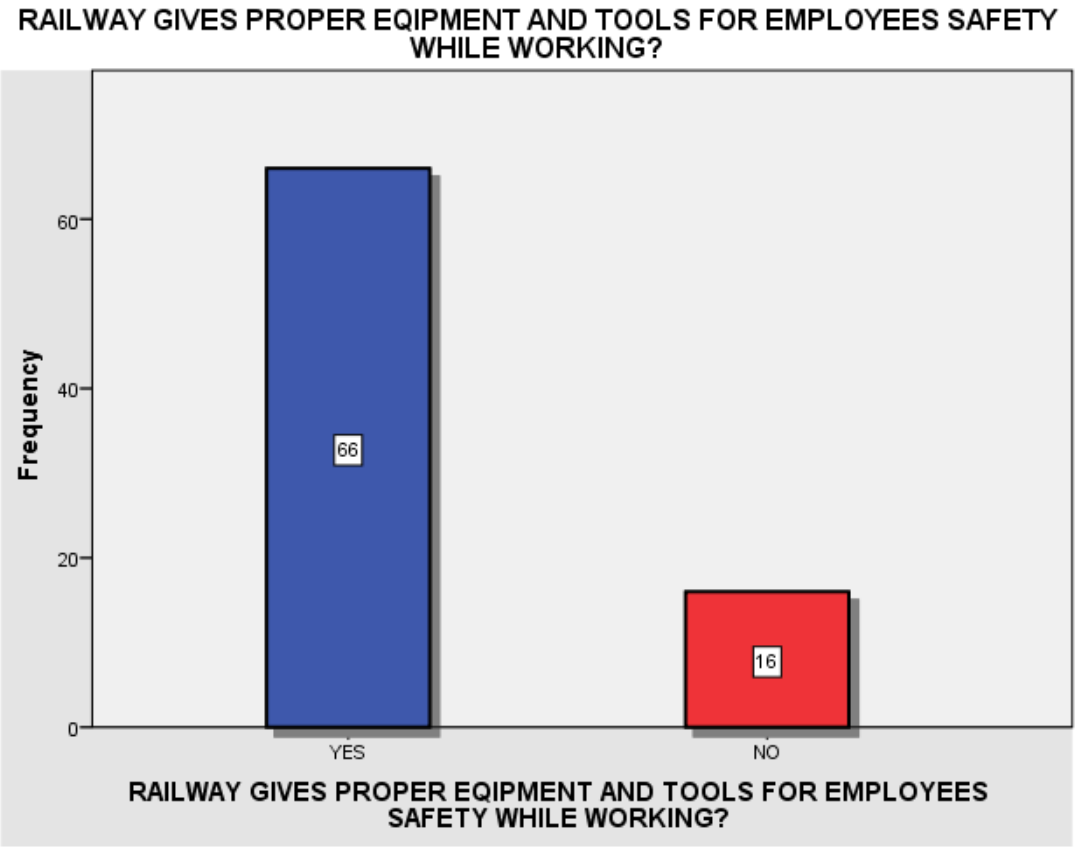
SECTION:2

3. YOU THINK THIS SAFETY TRAINING ARE HELPFUL ACCORDING TO YOURWORK?

- Here, define that out of 82 employees 75 employees are agree with the statement that safety training are helpful according to employees work and 7 employees are not agreed with the statement. they think safety training are not helpful for them at workplace.

SECTION:3

4. RAILWAY GIVES PROPER EQIPMENT AND TOOLS FOR EMPLOYEES SAFETY WHILE WORKING?



- Here define that out of 82 employees of railway 66 employees are agreed withthat railway gives proper equipment and tools for safety wile working at railway and 16 employees are not agreed with that.

5. EMPLOYEES PERSONALLY TAKE PRECAUSTION FOR THEIROWN SAFETY AT WORKPLACE ?

- Here define that out of 82 employees 64 employees are agreed that they personally also take care while they working at railway. and 6 employees are not agreed with that. 12 employees are not agreed and not disagree with the statement.

6.2 Hypothesis Testing:

HO: THERE IS NO SIGNIFICANT RELEATIONSHIP BETWEEN EMPLOYEES SAFETY TRAINING AND EMPLOYEES PERFOAMENCE.

H1: THERE IS SIGNIFICANT RELEATIONSHIO BETWEEN EMPLOYEES' SAFETY TRAINING AND EMPLOYYES PERFOAMENCE.

Here showing the releationship between employyes safety training and employees perfoamence. Its show that is there any releationship between employyes safety training and employee perfoamence. that define how much this training are helpful to employees while they working at their workplacce in railway. this questions coduct the response of particular answer of employyes that helps to understand the releationship between employees safety training and employees perfoamence. here the conducted chi-square test for finding the releationship between employees

safety training and employees perfoamence. its mean how much this safety training are helpful to employees while they working at railway.

Railway employees recievesafey training in Railway? * Safety training are helpful for employees in work at railway? Crosstabulation

Count

		Safety training are helpful for employees in work at railway?		Total
		yes	no	
Railway employees recievesafey training in Railway?	yes	58	3	61
	no	18	3	21
Total		76	6	82

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.021[a]	1	.155		
Continuity Correction[b]	.876	1	.349		
Likelihood Ratio	1.781	1	.182		
Fisher's Exact Test				.172	.172
Linear-by-Linear Association	1.997	1	.158		
N of Valid Cases	82				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.54.

b. Computed only for a 2x2 table

TABLE:1 (CHI-SQUARE TEST = □□□□□□□□□□ 1)

Chi-Square test helps define releationship between two variable. here one hypothesis shows two variable that is employees safety training and employees perfoamence. here take two questions for two variable. the question is railway employees recieve safety training railway industry. and second question is safety training are helpful to employees in railway industry while perfoaming their job.

this two variable here use for chi-square test for defining releationship between variables. responces here collected are 82 and that answer which conducted in answer yes or no. than chi-square test is applied for variables. chi-square test's significant value is 0.5 which defines significant value of variables. here we see fishers excate test that shows in chi-square test. and the test shows result .172 that it means more than 0.5. which proves null hypothesis. this shows no releatioship between employees safety training and employees perfoamence. its means employees get or not emplyees safety training still they do best perfoamence at their workplace.

HO: THERE IS NO RELEATIONSHIP BETWEEN EMPLOYEES SAFETY AND EMPLOYEES WORK ENVIOURMENT

H1: THERE IS RELEATIONSHIP BETWEEN EMPLOYYES SAFETY AND EMPLOYEES WORK ENVIOURMENT.

Here the showing releationship between employees safety and employees work enviourment at railway while they working at railway. for proving releationship right or wrong for testing hypothesis here used chi-square tesr for relastionship. This research conducted 82 employees survey for proving hypothesis test, 82 emplyees responce that helps to find releationship between employees safety and employees work enviourment at their workplace railway.

RAILWAY TAKE PRECAUSTION FOR EMPLOYEES WHILE THEY WORKING AT RAILWAY? * RAILWAY PUT SAFETY ON PRIORITY? Crosstabulation

Count

		RAILWAY PUT SAFETY ON PRIORITY?					
		strongly disagree	disagree	neutral	agree	strongly agree	Total
RAILWAY TAKE PRECAUSTION FOR EMPLOYEES WHILE THEY WORKING AT RAILWAY?	YES	11	1	6	13	34	65
	NO	4	1	3	3	6	17
Total		15	2	9	16	40	82

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	3.072[a]	4	.546
Likelihood Ratio	2.816	4	.589
Linear-by-Linear Association	1.689	1	.194
N of Valid Cases	82		

TABLE 2 : (CHI-SQUARE TEST= HYPOTHESIS 2)

Chi-Square test helps define releationship between two variable. here second hypothesis shows two variable that is employees safety and employees work enviourment. here take two questions for two variable. the question is railway take precaustion for employees at workplace in railway industry. and second is railway put safety on priority. this two variable here use for chi-square test for defining releationship between variables. responces here collected are 82 and table 2 shows chi square test for this variables. for significant value of chi-square test we see table 2 likelihood ration which is .589 which is more than 0.5 value. that means there is prove null hypothesis. that means there no releationship betweenemployees safety training and employees work enviourment. if employees dont get there safety training still its not make impact on their work enviourment.

Limitation of the Study:

Sample Size and Diversity: The study's reliance on a sample of 82 employees may not adequately represent the entire railway industry, which consists of thousands of workers across various roles and regions. The limited sample size and potential lack of diversity in terms of job functions, experience levels, and geographic locations can restrict the applicability of the findings to the broader population of railway employees.

Conclusion:

The data highlights a generally positive perception towards the railway's prioritization of safety, with a majority of respondents either agreeing or strongly agreeing that safety is a top priority. This is a promising indication of the organization's commitment to maintaining a safe working environment. However, the presence of employees who feel neutral or disagree with this sentiment points towards areas where improvements can be made to reinforce safety perceptions. Responses regarding personal safety while performing job duties show a more varied perspective, suggesting that while some employees feel secure, a significant portion still harbors concerns. This discrepancy underscores the importance of not only implementing safety measures but also ensuring that these measures are effectively communicated and perceived by all employees. The overwhelming affirmation of the helpfulness of safety training indicates that the railway has successfully implemented training programs that resonate with the workforce's needs. This is a critical aspect of building a robust safety culture, as well-informed employees are better equipped to navigate and mitigate risks in their work environment. Lastly, the personal initiative towards safety precautions among employees is commendable, highlighting a proactive approach to safety. This individual responsibility, coupled with organizational measures, creates a comprehensive safety ecosystem

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