



# A STUDY ON EMPLOYEE SAFETY WITH REFERENCE TO THE METRO RAIL PROJECT IN CHENNAI

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## ABSTRACT

This study aims to investigate and analyze the current state of employee safety in the context of the Metro Rail project in Chennai, shedding light on the existing safety measures, identifying potential gaps, and proposing effective strategies for improvement. The research employs a mixed-methods approach, combining quantitative data collection through surveys and incident reports with qualitative insights gathered through interviews and site observations. The study will explore the impact of organizational culture and management practices on employee safety. By integrating findings from the research, this study aims to provide actionable recommendations to enhance employee safety in Chennai Metro Rail projects. These recommendations will not only address immediate safety concerns but also contribute to the long-term sustainability of the metro rail system by fostering a culture of safety, continuous improvement, and proactive risk management. The outcomes of this study aspire to serve as a valuable resource for policymakers, project managers, safety professionals, and other stakeholders involved in Chennai's metro rail development, fostering a safer and more secure working environment for all employees involved in this critical infrastructure project.

## KEYWORDS

Employee Safety, Metro Rail

## INTRODUCTION

Employee safety is an ongoing and dynamic process that requires collaboration, communication, and a commitment to continuous improvement. By integrating these elements into the workplace, organizations can create a culture of safety that not only protects employees but also contributes to overall operational excellence.

Employee welfare and safety has seen as one of the important measures of performance of an organization. The changes in the work life of employees and changes in the business environment internal as well as external has brought tremendous transformation in the organizational behaviour. Globalisation, Technology and other work-design factors have forced organizations to focus on employee Safety and Welfare. Organizations have set standard measures to take care of the employees' professional and personal careers. Increase in reliance on technology, distributed work arrangements, increase in pace of work, and diversity in the work environment creating several challenges for Human Resource Management personnel.

Employee safety is a multifaceted concept that encompasses various practices, policies, and measures implemented in the workplace to protect the well-being of workers. Ensuring employee safety is a critical aspect of responsible business management, and it involves a combination of preventive measures, training, awareness, and ongoing evaluation.

## OBJECTIVES OF THE STUDY

- To evaluate and examine the existing safety policies and procedures in the Chennai Metro rail project.
- To look into the causes of workplace events and accidents in the Chennai Metro train project.
- To assess the success of safety education and awareness campaigns for Chennai Metro rail staff.
- To suggest a thorough safety management strategy for the Chennai Metro train project.

## SCOPE OF THE STUDY

- Identify specific occupational hazards and risks faced by employees in the unique context of the Chennai Metro Rail project.
- Evaluate the effectiveness of existing safety policies and procedures to ensure compliance with regulatory standards.
- Investigate the causes and frequency of workplace incidents and accidents, providing insights for preventive measures.
- Examine the level of employee involvement in safety initiatives and evaluate the existing reporting culture.

## NEED FOR THE STUDY

- Prioritizing employee safety ensures the well-being of workers, minimizing accidents and promoting a healthy work environment.
- Ensuring adherence to safety regulations is essential to avoid legal issues and penalties, demonstrating a commitment to regulatory compliance.
- A focus on employee safety minimizes disruptions, contributing to the smooth and uninterrupted progress of the Chennai Metro Rail project.
- A commitment to employee safety enhances the project's reputation, building trust among stakeholders and the public.

## REVIEW OF LITERATURE

**Chen McCabe Hyatt et al. (2017)** Said that the construction industry has hit a level as far as safety performance. Safety atmosphere might be topographically touchy, in this way it is important to look at how the build of safety atmosphere is characterized and used to enhance safety execution in various regions. These discoveries feature the part of authoritative factors and in addition singular factors in influencing singular safety execution and mental well-being. Construction associations need to screen workers' safety execution as well as their mental prosperity, advancing a positive safety atmosphere.

**Jothsna Jegan et al. (2017)** Stated that construction works everywhere throughout the world stance genuine risk to workers and non-workers. The effects of the chronicled, sparing, mental, specialized, procedural, recurrence and the ecological issues are considered regarding how these factors are connected with the level of site safety performance. It was observed to be that the workers have gotten a constrained culture of safety awareness, which prompted primary driver of accidents. Improvement in safety culture is in this way acquired by watching and Intervening cutting edge workers.

**Mohammed Shamsul Bakri et al. (2017)** Identified that safety management is related with the arrangements, targets, techniques, strategies, parts and capacities that go for controlling peril and hazard in socio-specialized systems. The mindfulness and impression of workers toward safety, wellbeing and their workplace are essential perspective to upgrade the building construction to the better condition to the workers. Knowledge or attention to safety management framework is an imperative thought to viable safety management framework on location as high safety and wellbeing execution could enhance the association picture through less mishap, less truants of workers from work, less doctor's visit expenses, etc.

**SaatMohd Subramaniam Shamsudin et al. (2016)** Inferred that safety execution has picked up acknowledgment as a field of study and has been progressively looked into nowadays. The paper recognizes and talks about the essential issues that require center before directing an examination on safety performance. Study on safety execution ought to be founded on multi-level analyses.

**Yiu Chan et al. (2016)** Depicted that the construction industry is one of the businesses considered with the most astounding mischance rates over the world in view of its high hazard and quick changing work nature. Safety administrators (safety-in-control) are thought to be one of the key staff mindful and responsible for SMS. His quality and competency were imperative to impact the execution of SMS or site safety execution. These two specific territories were additionally prescribed to be evaluated keeping in mind the end goal to better legitimize the execution of the safety management systems, together with the construction site safety performance.

**Babu, et al. (2016)** Studied on “Association of quality of life and job stress in occupational workforce of India: Findings from a cross sectional study on software professionals”. The authors found that all the domains (physical, psychological, social, and environmental) of Quality of Life(QoL) showed statistically significant positive associations with increasing stress domains of autonomy, physical infrastructure, work environment, and emotional factors.

**Amponsah-Tawaih and M.A. Adu (2016)** Discussed in their study that when employees perceive the general safety climate of their organization to be positive, they will be more likely to engage in positive safety behaviors. Specifically, when employees perceive safety communication, safety systems and training to be positive or good, they seem to comply with safety rules and procedures than voluntarily participate in safety activities.

## RESEARCH DESIGN

The research design is the conceptual structure within research is conducted it constitutes the blueprint for the collection measurement and analysis of data. In the research survey conducted, the research design adopted is “DESCRIPTIVE RESEARCH DESIGN”

## SOURCES OF DATA

- **PRIMARY DATA** – Questionnaire Given To 80 Respondents
- **SECONDARY DATA** – Websites, Published reports & review of literature from published articles

## HYPOTHESIS

### HYPOTHESIS – 1

(H0): There is no significant difference in satisfaction with safety policies and procedures among different age groups.

(H1): There is a significant difference in satisfaction with safety policies and procedures among different age groups.

### HYPOTHESIS – 2

(H0): There is no significant difference in the perception of the effectiveness of safety education and awareness campaigns based on the years of experience.

(H1): There is significant difference in the perception of the effectiveness of safety education and awareness campaigns based on the years of experience.

## PERCENTAGE ANALYSIS

PARTICULARS					
<b>Age</b>	<b>Below 25</b>	<b>25 - 30</b>	<b>31 - 35</b>	<b>36 - 40</b>	<b>41 And Above</b>
	28.75%	23.75%	17.5%	20%	10%
<b>Clarity and accessibility of the safety</b>	<b>HIGHLY DISSATISFIED</b>	<b>DISSATISFIED</b>	<b>NEUTRAL</b>	<b>SATISFIED</b>	<b>HIGHLY SATISFIED</b>
	7.5%	11.25%	16.25%	48.75%	16.25%
<b>Years of Experience</b>	<b>Less than 2 years</b>	<b>2 – 4 years</b>	<b>5 – 7 years</b>		
	22.5%	45%	32.5%		
<b>Impact of safety education campaigns</b>	<b>NOT AT ALL</b>	<b>SLIGHTLY</b>	<b>MODERNATELY</b>	<b>SIGNIFICANTLY</b>	<b>COMPLETELY</b>
	11.25%	11.25%	25%	33.75%	18.75%

## INTERPRETATION

- Table it is interpreted that the number of respondents were 28.75% are below 25, 23.75% are 25 – 30, 17.5% are 31 – 35, 20% are 36 – 40, 10% are 41 and above.
- Table it is interpreted that the number of respondents were 7.5% are highly dissatisfied, 11.25% are dissatisfied, 16.25% are neutral, 48.75% are satisfied, 16.25% are highly satisfied.
- Table it is interpreted that the number of respondents were 22.5% have Less than 2 years of experience, 45% have 2 – 4 years of experience, 32.5% have 5 – 7 years of experience.
- Table it is interpreted that the number of respondents were 11.25% are not at all, 11.25% are slightly, 25% are Modernately, 33.75% are significantly, 18.75% are completely.

## INFERENCE

- Majority 28.75% of the respondents are in the age category below 25.

- Majority 48.75% of the respondents are satisfied with Clarity and accessibility of the safety.
- Majority 45% of the respondents have 2 – 4 years of experience.
- Majority 33.75% of the respondents are significantly with Impact of safety education campaigns.

## ANOVA

Age of the respondents

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.973	4	1.493	.803	.527
Within Groups	139.415	75	1.859		
Total	145.388	79			

## INTERPRETATION

The p value 0.527 which is greater than the significance value (0.05) hence null hypothesis (H0) is accepted and Alternate hypothesis (H1) is rejected.

## CORRELATION

### Correlations

		Years of experience of the respondents	To what extent have safety education and awareness campaigns improved your understanding of workplace safety in the Chennai Metro Rail Project?
Years of experience of the respondents	Pearson Correlation	1	.017
	Sig. (2-tailed)		.880
	N	80	80
To what extent have safety education and awareness campaigns improved your understanding of workplace safety in the Chennai Metro Rail Project?	Pearson Correlation	.017	1
	Sig. (2-tailed)	.880	
	N	80	80

## INTERPRETATION

The p value .017 which is greater than the significance value (0.05) hence null hypothesis (H0) is accepted and Alternate hypothesis (H1) is rejected.

## FINDINGS

- Majority 28.75% of respondents are in the age category of below 25.
- Majority 45% of the respondents have 2 – 4 years of experience.

- Majority 52.5% of the respondents are married.
- Majority 48.75% of the respondents are satisfied with safety policies.
- Majority 38.75% of the respondents are Effective with safety communication.
- Majority 45% of the respondents are Agree with comprehensive reporting system.
- Majority 32.5% of the respondents are aware of reporting procedures.
- Majority 28.75% of the respondents are often involvement in development of safety policies.
- Majority 32.5% of the respondents are Neutral Thorough Investigation of Root Causes.
- Majority 33.75% of the respondents are Effective with Effectiveness of Corrective Action Process.
- Majority 38.75% of the respondents are Agree with Promotion of Safety Culture.
- Majority 33.75% of the respondents are often with Employee Training for Avoiding Incidents.
- Majority 25% of the respondents are Very aware with Safety Education Campaigns.
- Majority 33.75% of the respondents are significantly Impact of Safety Education Campaigns on Understanding.
- Majority 38.75% of the respondents are Agree with Effectiveness of Safety Campaigns in Reducing Incidents.
- Majority 46.25% of the respondents are Often active participation in safety activities.
- Majority 47.5% of the respondents are Well Effectiveness of current safety management policy.
- Majority 41.25% of the respondents are Often access to training and resources.
- Majority 37.5% of the respondents are satisfied with safety management measures.
- Majority 23.75% of the respondents are Strongly Agree with need for improvement in safety management.
- By using ANOVA for finding the relationship between the Age & How satisfied are you with the clarity and accessibility of the safety policies and procedures in the Chennai Metro rail project? That the p value 0.527 which is greater than the significance value (0.05) hence null hypothesis (H0) is accepted and Alternate hypothesis (H1) is rejected.
- By using CORRELATION for finding the relationship between the years of experience & To what extent have safety education and awareness campaigns improved your understanding of workplace safety in the Chennai Metro Rail Project? we found that there is a positive correlation underlies between both the factors with the value of 0.01 level of significance and also found that strong relationship (0.017) found between each variable.

## SUGGESTIONS

- The majority of respondents express satisfaction with safety policies, comprehensive reporting systems, and current safety management measures. Leverage this positive sentiment as a foundation for ongoing improvements and awareness initiatives.
- The findings indicate a significant level of employee involvement in safety-related activities, reflecting a positive safety culture. Capitalize on this by fostering a collaborative approach to safety initiatives and encouraging open communication.
- Recognize areas where Respondents express neutrality or ambiguity, such as root cause investigation and safety communication. Addressing these gaps through targeted interventions can lead to a more comprehensive and effective safety program.
- With a significant number of respondents noting their involvement in safety activities, consider providing additional training on incident avoidance. This can empower employees to proactively contribute to a safer work environment.
- Increase opportunities for employee involvement in the development of safety policies. This could include regular forums for input and feedback, encouraging a sense of ownership and accountability among employees.
- Despite a substantial agreement with the promotion of safety culture, explore ways to further embed safety values in the workplace.

## CONCLUSION

- The study on employee safety within the context of the Metro Rail project in Chennai reveals valuable insights into various facets of safety management. The majority of respondents, particularly those below the age of 25, exhibit a noteworthy level of awareness and involvement in safety practices. The findings emphasize the importance of targeted training programs for this demographic, ensuring their active participation in fostering a robust safety culture.
- The study acknowledges the positive satisfaction levels with safety policies, communication effectiveness, and reporting systems. However, it also identifies areas for improvement, such as neutral perceptions towards thorough investigation of root causes. Addressing these gaps through enhanced training and awareness initiatives is crucial for maintaining and enhancing the overall safety framework.
- The Metro Rail project in Chennai has a strong foundation in safety management, but continuous efforts are required to address specific areas for improvement. By tailoring initiatives to the unique demographic and experience profile of the workforce, the project can not only sustain its current safety standards but also strive for excellence in employee well-being and project success.

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