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A Study on Strategies for Promoting a Safety Culture in the Workplace

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Abstract: *Workplace safety culture — the shared values, beliefs, attitudes, and behavioural norms that determine how seriously an organization prioritizes safety — is one of the most powerful determinants of occupational health and safety outcomes. Organizations with a mature safety culture consistently record fewer accidents, lower injury rates, reduced absenteeism, and superior compliance with regulatory standards compared to those where safety remains a procedural afterthought. This research paper examines the strategies adopted by organizations to promote and sustain a strong safety culture in the workplace, with particular reference to the role of Human Resource Management (HRM) practices in institutionalizing safety values.*

Drawing on both primary survey data collected from 120 employees and managers across manufacturing and service sector organizations in the Chhatrapati Sambhajnagar industrial belt, and secondary data from published organizational safety research, this study identifies the most effective safety culture promotion strategies, assesses the barriers to safety culture development, and evaluates the relationship between safety culture maturity and key occupational safety outcomes. Findings highlight that leadership commitment, employee participation, safety training, hazard communication, and incident reporting systems are the five most impactful safety culture drivers. The study proposes a Safety Culture Promotion Framework (SCPF) for organizations in the Indian industrial context and offers recommendations for HR managers, safety officers, and policy makers.

Keywords: *Safety Culture, Workplace Safety, Human Resource Management, Occupational Health and Safety (OHS), Leadership Commitment, Employee Participation, Safety Training, Incident Reporting, Hazard Communication, SCPF*

I. INTRODUCTION

Workplace safety is a fundamental right of every employee and a core responsibility of every employer. Despite significant advances in occupational health and safety legislation, engineering controls, and management systems, workplace accidents, injuries, and occupational illnesses continue to impose enormous human and economic costs globally and in India. According to the International Labour Organization (ILO), approximately 2.3 million workers die each year from work-related accidents and diseases, with millions more suffering non-fatal injuries. In India, the Directorate General Factory Advice Service & Labour Institutes (DGFASLI) reports thousands of fatal and reportable accidents in registered factories annually, underscoring the ongoing urgency of workplace safety improvement.

While engineering controls, personal protective equipment, and regulatory compliance systems play essential roles in managing occupational hazards, research increasingly points to organizational safety culture as the most fundamental determinant of workplace safety performance. Safety culture operates at the level of shared values and assumptions: in organizations with a strong safety culture, employees at all levels genuinely believe that safety matters, feel empowered to identify and report hazards, and trust that management will act on their concerns. In organizations where safety culture is weak, compliance is performative, hazards are underreported, and accidents are waiting to happen.

For Human Resource Management professionals, safety culture is not merely a compliance matter but a strategic concern. The HR function shapes safety culture through recruitment and selection (hiring people who value safety), onboarding (communicating safety as a core organizational value), training (building safety knowledge and competence), performance management (recognizing and rewarding safe behaviour), and leadership development (equipping managers to model and reinforce safety norms). This research examines how organizations can systematically promote a safety culture through HR-led strategies, contributing to both employee well-being and organizational performance.

II. LITERATURE REVIEW

A. Defining Safety Culture

The concept of safety culture entered the organizational and safety science lexicon following the 1986 Chernobyl nuclear disaster, when the International Nuclear Safety Advisory Group (INSAG) identified "poor safety culture" as a root cause of the catastrophe. Since then, the concept has been elaborated extensively in both academic research and regulatory frameworks. The Health and Safety Executive (HSE) of the United Kingdom defines safety culture as "the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization's health and safety management."

Zohar (1980), in one of the earliest empirical studies of organizational safety climate (a related construct reflecting employees' shared perceptions of the importance management places on safety), demonstrated that safety climate predicted accident rates in manufacturing organizations. This landmark finding launched decades of research establishing the empirical connection between organizational safety culture/climate and occupational safety outcomes. Reason (1997), in his influential "Swiss Cheese" model of organizational accidents, positioned safety culture as the generative force that shapes how effectively an organization's safety defenses function: organizations with a "generative" safety culture proactively identify and close gaps in their defenses, while those with "pathological" safety cultures suppress hazard information and normalize risk.

B. Components of Safety Culture

Contemporary safety culture frameworks identify multiple interacting components. Cooper's (2000) Reciprocal Safety Culture Model — one of the most widely cited — identifies three components: the psychological climate (what people feel and think about safety), the behavioural component (what people do in relation to safety), and the situational component (what the organization has in place to support safety). This model captures the dynamic, mutually reinforcing nature of safety culture: management systems create the conditions for safe behaviour; safe behaviour demonstrates and reinforces safety values; and positive safety values support investment in management systems.

Hudson (2007) proposed a safety culture maturity model with five levels — Pathological ("Why should we spend time on safety if there are no accidents?"), Reactive ("We take safety seriously and do something every time we have an accident"), Calculative ("We have systems in place to manage all identified hazards"), Proactive ("We work on the problems we still find"), and Generative ("Safety is how we do business around here") — providing organizations with a developmental roadmap for safety culture improvement.

C. HRM's Role in Safety Culture

Human Resource Management is increasingly recognized as a critical enabler of safety culture development. Zacharatos, Barling, and Iverson (2005) established empirically that High-Performance Work Systems — bundles of HR practices including selective recruitment, extensive training, information sharing, and participation — are positively associated with workplace safety outcomes, mediated through safety climate. Their findings suggest that the same HR practices that drive organizational performance also promote safety culture.

Vinodkumar and Bhasi (2010) examined the safety management practices of manufacturing organizations in Kerala, India, and found that management commitment, safety training, employee involvement, and safety communication were the strongest predictors of safe behaviours and accident rates. Their findings, replicated in the Indian industrial context, provide direct empirical support for the HR-driven safety culture promotion strategies examined in this research.

D. Safety Culture in the Indian Industrial Context

India's rapid industrialization and the formalization of previously unorganized manufacturing activities have elevated workplace safety to a national policy priority. The Factories Act, 1948, and its subsequent amendments, along with sector-specific regulations, provide the legislative framework for workplace safety in India. The National Safety Policy (2009) and National Safety Council's initiatives reflect growing institutional attention to safety culture promotion at the national level.

Despite this framework, research consistently identifies gaps between regulatory compliance and genuine safety culture in Indian manufacturing. Studies by Srivastava and Srivastava (2014) of Indian chemical and process industries found that while formal safety management systems were widely implemented, the underlying safety culture — as measured by employee safety climate perceptions — remained weak in many organizations, with employees frequently reporting pressure to prioritize production over safety and reluctance to report near-misses for fear of blame.

III. OBJECTIVES OF THE STUDY

- 1) To examine the conceptual foundations of safety culture and its significance for occupational health and safety outcomes in the workplace.
- 2) To identify and analyze the key strategies adopted by organizations to promote and sustain a safety culture, with emphasis on HR-led initiatives.
- 3) To assess employee and management perceptions of safety culture strength in selected organizations in the Chhatrapati Sambhajnagar industrial belt.
- 4) To evaluate the relationship between safety culture promotion strategies and key safety outcomes including accident rates, near-miss reporting, and safety compliance.
- 5) To identify the principal barriers to safety culture development in Indian organizational contexts and the strategies used to overcome them.
- 6) To propose a Safety Culture Promotion Framework (SCPF) applicable to manufacturing and service sector organizations in India.
- 7) To offer evidence-based recommendations for HR managers, safety officers, and policy makers committed to improving workplace safety culture.

IV. RESEARCH METHODOLOGY

A. Research Design

This study employs a mixed-methods research design, integrating quantitative survey research with qualitative insights from structured interviews and focus group discussions. The quantitative component involves a structured questionnaire administered to 120 respondents — comprising both shop-floor employees (80 respondents) and supervisors/managers (40 respondents) — drawn from eight manufacturing and service sector organizations in the Chhatrapati Sambhajnagar industrial region. The qualitative component involves structured interviews with 12 senior HR and Safety managers to elicit deeper insights into safety culture strategies and implementation challenges.

B. Sample and Sampling Method

Respondents were selected using stratified purposive sampling, ensuring representation across industry types (manufacturing: automotive components, chemicals, textiles; service: construction, logistics), organizational size (small, medium, and large enterprises), and employee categories (operators, supervisors, and managers). The sample of 120 respondents provides adequate statistical power for the quantitative analysis while remaining manageable for a detailed research study.

C. Data Collection Instruments

The primary data collection instrument is a structured questionnaire comprising four sections: (a) Respondent profile (designation, industry, organizational size, tenure); (b) Safety culture assessment using a 25-item Likert scale instrument adapted from the Nordic Occupational Safety Climate Questionnaire (NOSACQ-50); (c) Safety culture promotion strategies — rating the effectiveness of 15 identified strategies on a 5-point scale; and (d) Safety outcomes — self-reported accident experience, near-miss reporting frequency, and perceived safety compliance levels. Secondary data was sourced from published academic research, DGFASLI annual reports, and organizational safety records where accessible.

D. Data Analysis

Quantitative data was analyzed using descriptive statistics (frequencies, means, standard deviations) and inferential statistics (correlation analysis to assess relationships between safety culture dimensions and safety outcomes; one-way ANOVA to assess differences in safety culture perceptions across industry types and organizational sizes). Qualitative interview data was analyzed using thematic coding, with themes organized around the categories of safety culture drivers, barriers, and HR strategies.

V. FINDINGS AND ANALYSIS

A. Respondent Profile

Table 5.1: Profile of Survey Respondents (n = 120)

Category	Sub-category	Number	Percentage (%)
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Category	Sub-category	Number	Percentage (%)
Designation	Operator / Shop-floor Worker	80	66.7
	Supervisor / Team Leader	28	23.3
	Manager / HR / Safety Officer	12	10.0
Industry Type	Automotive Component Manufacturing	42	35.0
	Chemical / Process Industry	24	20.0
	Construction / Infrastructure	22	18.3
	Logistics / Warehousing	18	15.0
	Other Manufacturing / Service	14	11.7
Organisation Size	Small (< 50 employees)	30	25.0
	Medium (50–250 employees)	52	43.3
	Large (> 250 employees)	38	31.7
Experience	Less than 2 years	28	23.3
	2 to 5 years	44	36.7
	More than 5 years	48	40.0

Source: Primary Survey Data (2024)

B. Safety Culture Perceptions: Dimension-wise Analysis

Table 5.2 presents the mean scores for each dimension of the safety culture assessment instrument, averaged across all 120 respondents, on a scale of 1 (strongly disagree / very poor) to 5 (strongly agree / excellent).

Table 5.2: Safety Culture Dimension-wise Mean Scores (n = 120)

Safety Culture Dimension	Mean Score (/ 5)	Std. Deviation	Interpretation
Management Commitment to Safety	3.42	0.78	Moderate
Employee Participation in Safety	3.18	0.84	Moderate
Safety Training & Competence	3.56	0.72	Moderate-High
Hazard Identification & Reporting	2.98	0.91	Below Moderate
Safety Communication	3.31	0.80	Moderate
Incident Investigation & Learning	3.09	0.87	Moderate
Safety Rules & Procedures	3.64	0.69	Moderate-High
Work Environment & Conditions	3.47	0.76	Moderate
Overall Safety Culture Index	3.33	0.62	Moderate

Source: Primary Survey Data (2024); Scale: 1 = Very Poor, 5 = Excellent

The overall Safety Culture Index of 3.33 indicates a moderate level of safety culture maturity across the surveyed organizations, consistent with Hudson’s (2007) "Calculative" safety culture level — where systems are in place but genuine proactive engagement is limited. The lowest-scoring dimension — Hazard Identification and Reporting (mean 2.98) — reflects a persistent challenge in Indian industrial settings: employees’ reluctance to report near-misses and hazards for fear of blame, reprimand, or reputational consequences. The highest-scoring dimensions are Safety Rules & Procedures (3.64) and Safety Training & Competence (3.56), suggesting that formal compliance infrastructure is relatively better developed than the cultural dimensions of safety engagement.

C. Effectiveness of Safety Culture Promotion Strategies

Respondents rated 15 identified safety culture promotion strategies on a 5-point effectiveness scale. Table 5.3 presents the ten highest-rated strategies, ranked by mean effectiveness score.

Table 5.3: Effectiveness of Safety Culture Promotion Strategies (Ranked)

Rank	Strategy	Mean Score (/ 5)	Category
1	Visible leadership commitment to safety (management walkarounds, safety messaging)	4.38	Leadership
2	Regular safety training and competency development programmes	4.24	Training & Development
3	Anonymous near-miss and hazard reporting systems	4.19	Reporting Systems
4	Employee safety committees and participation forums	4.12	Employee Participation
5	Recognition and reward programmes for safe behaviour	4.08	HRM Practice
6	Toolbox talks and daily safety briefings at shift start	3.97	Communication
7	Effective Personal Protective Equipment (PPE) provision and monitoring	3.94	Engineering/Admin Controls
8	Safety induction for new employees and contractors	3.89	Onboarding
9	Root cause analysis and learning from incident investigations	3.82	Learning Systems
10	Safety performance metrics visible to all employees	3.76	Communication

Source: Primary Survey Data (2024); Scale: 1 = Not Effective, 5 = Highly Effective

Leadership commitment emerges as the highest-rated safety culture promotion strategy, consistent with the overwhelming weight of academic research on this topic. Employees who perceive that senior management genuinely prioritizes safety — as demonstrated not merely through policy statements but through visible behaviour such as safety walkarounds, participation in safety reviews, and prompt response to safety concerns — develop stronger safety culture perceptions and engage in safer behaviours. Anonymous reporting systems rank third, confirming the critical importance of psychological safety in enabling hazard identification and near-miss reporting.

D. Safety Culture Maturity by Organisation Size

Table 5.4: Overall Safety Culture Index by Organisation Size

Organisation Size	n	Mean Safety Culture Index	Std. Deviation
Small (< 50 employees)	30	2.87	0.71
Medium (50–250 employees)	52	3.34	0.58

Organisation Size	n	Mean Safety Culture Index	Std. Deviation
Large (> 250 employees)	38	3.76	0.49

Source: Primary Survey Data (2024)

The data reveals a clear positive relationship between organizational size and safety culture maturity, with large organizations (mean 3.76) significantly outperforming small organizations (mean 2.87). This finding is consistent with the resource-dependency hypothesis: larger organizations have greater capacity to invest in dedicated safety personnel, training infrastructure, reporting systems, and safety management systems. Small enterprises — which constitute the majority of Indian industrial establishments — face significant resource constraints in building safety culture infrastructure, pointing to the need for policy support targeted at this segment.

VI. BARRIERS TO SAFETY CULTURE DEVELOPMENT

Table 6.1: Key Barriers to Safety Culture Development and Mitigation Strategies

Barrier	Impact	Mitigation Strategy
Production pressure overriding safety	Employees and supervisors cut corners on safety to meet output targets	Safety-integrated KPIs; management messaging that safety enables production
Fear of blame and punishment for reporting	Near-misses go unreported; hazards persist unaddressed	Confidential/anonymous reporting systems; just culture policies
Low safety literacy among workers	Failure to recognize hazards; non-compliance with safety procedures	Visual safety communication; mother-tongue training materials
Inadequate management commitment	Safety seen as compliance, not value; employee cynicism about safety messaging	Safety leadership development; board-level safety governance
Inadequate resources for safety investments	PPE shortfalls; deferred maintenance; insufficient training budgets	Safety budgets ring-fenced; government MSME safety support schemes
High employee turnover	Loss of safety knowledge; need for continuous induction	Mentoring programmes; visual standard operating procedures
Contractor and migrant workforce management	Contractors with lower safety training and commitment	Unified safety induction for all workers; contractor safety prequalification

Source: Primary Survey Data and Management Interviews (2024)

Production pressure emerging as the most frequently cited barrier — reported by 74% of respondents — points to the fundamental tension in many organizations between short-term output targets and the longer-term investment required to build safety culture. Fear of blame and punishment for reporting incidents was cited by 68% of respondents as a significant barrier, underscoring the importance of psychological safety and just culture policies in enabling the transparent hazard reporting that underpins proactive safety management. Low safety literacy among workers — particularly migrants and those with limited formal education — was identified as a significant challenge by 61% of respondents, with implications for the design of safety communication and training programmes.

VII. SAFETY CULTURE PROMOTION FRAMEWORK (SCPF)

Based on the survey findings, management interviews, and theoretical synthesis, this research proposes a Safety Culture Promotion Framework (SCPF) comprising six interconnected pillars:

Pillar 1: Leadership Commitment and Visibility

Safety culture begins at the top. Senior leaders must demonstrate genuine, visible commitment to safety through regular safety walkarounds, participation in incident investigations, personal safety messaging, and — most critically — decisions that demonstrate safety takes precedence over production when conflicts arise. Leadership commitment is not a programme or initiative but a consistent pattern of behaviour that employees observe, interpret, and internalize as a signal of organizational priorities.

Pillar 2: HR-Integrated Safety Management

Human Resource Management practices must be explicitly aligned with safety culture goals. This includes incorporating safety attitudes and behaviour into recruitment and selection criteria; embedding safety expectations in induction programmes; integrating safety competencies into performance appraisal frameworks; recognizing and rewarding safe behaviour through formal recognition programmes; and developing managers' safety leadership capabilities through targeted training. When safety is integrated into the full employee lifecycle through HR processes, it becomes a genuine organizational value rather than an add-on compliance requirement.

Pillar 3: Employee Participation and Empowerment

Employees closest to operational hazards possess the most relevant knowledge of safety risks and improvement opportunities. Effective safety culture promotion creates structured channels for employee participation: joint safety committees, hazard identification tours, safety suggestion schemes, and safety circle (small group improvement) activities. Empowering employees to stop work when they identify unsafe conditions — the Stop Work Authority principle — and responding positively when this authority is exercised, powerfully signals that safety takes genuine precedence over production.

Pillar 4: Safety Communication and Learning Systems

Organizational learning from safety incidents — including near-misses and minor incidents that precede major accidents — is essential to proactive safety culture development. Establishing anonymous reporting systems, conducting thorough root cause analysis of all reported incidents, sharing learnings across the organization, and visibly tracking and closing corrective actions creates a learning loop that continuously improves the safety system. Regular safety communication through toolbox talks, safety noticeboards, team briefings, and digital channels maintains safety awareness and demonstrates organizational commitment.

Pillar 5: Training and Competency Development

Safety training must go beyond regulatory compliance to build genuine safety competency at all organizational levels. This requires needs-based training design (identifying the specific safety knowledge and skills gaps of different employee groups), diverse delivery methods (classroom, on-the-job, simulation, e-learning), mother-tongue delivery for multilingual workforces, and competency assessment to verify learning retention. Supervisors and managers require specific safety leadership training equipping them to conduct effective toolbox talks, perform meaningful safety observations, and support employee hazard reporting.

Pillar 6: Measurement, Review, and Continuous Improvement

What gets measured gets managed. Organizations committed to safety culture development must establish a comprehensive safety performance measurement system tracking both lagging indicators (accident rates, lost time injury frequency rates, reportable incidents) and leading indicators (near-miss reports, safety observations completed, training completion rates, hazard closure rates, safety audit scores). Regular safety performance reviews at all organizational levels — from shop floor team meetings to board safety committees — embed safety accountability into the organizational governance system.

VIII. RECOMMENDATIONS

1) For HR Managers

- Embed safety competencies explicitly in job descriptions, selection criteria, and performance appraisal frameworks to signal that safety is a core expectation of every role.
- Design and implement a structured Safety Leadership Development Programme for supervisors and middle managers, equipping them with the knowledge and skills to model and reinforce safety culture on the shop floor.
- Establish a formal safety recognition programme — individual and team awards for safety leadership, hazard identification, or injury-free performance — that makes safe behaviour visible and valued.

- Develop multilingual, visually rich safety communication materials and training content appropriate for varied literacy levels across the workforce.
 - Implement periodic safety culture surveys to track safety culture maturity over time and identify dimensions requiring targeted intervention.
- 2) *For Safety Officers*
- Establish a confidential or anonymous near-miss and hazard reporting system, supported by a visible commitment to respond to every report within a defined timeframe.
 - Conduct regular structured safety walkarounds with senior managers, using a standardized observation checklist to ensure consistent engagement quality and follow-up action tracking.
 - Implement the Hudson Safety Culture Maturity Model as a diagnostic and improvement roadmap, conducting annual safety culture maturity assessments and tracking progress against the model.
 - Develop hazard-specific risk registers for all significant workplace hazards, with assigned ownership, control measures, and review dates — shared with and co-owned by the workforce.
- 3) *For Policy Makers*
- Strengthen the Factories Act inspection and enforcement regime to ensure that safety culture — not merely technical compliance — is assessed during regulatory inspections.
 - Develop an MSME Safety Culture Support Programme providing subsidized safety consultancy, training, and system-development support to small and medium enterprises, which are disproportionately resource-constrained in safety investment.
 - Mandate safety culture training as a component of the National Apprenticeship Promotion Scheme and Industrial Training Institute curricula, building safety awareness in the workforce pipeline.

IX. CONCLUSION

This research has examined the strategies for promoting a safety culture in the workplace, drawing on survey data from 120 employees and managers across manufacturing and service sector organizations in the Chhatrapati Sambhajnagar industrial region. The findings are clear: safety culture is not an automatic outcome of regulatory compliance or engineering controls but the product of deliberate, sustained organizational effort — led from the top, enabled by HR practices, and sustained through employee participation, effective communication, and continuous learning.

The five most effective safety culture promotion strategies identified — visible leadership commitment, regular safety training, anonymous reporting systems, employee safety participation, and recognition of safe behaviour — are fundamentally people-centred, positioning Human Resource Management as an indispensable partner in organizational safety culture development. The barriers identified — production pressure, fear of blame, low safety literacy, and resource constraints — are real but surmountable through the strategies documented in this study and codified in the proposed Safety Culture Promotion Framework (SCPF).

As India's industrial sector continues to grow and formalize, the urgency of safety culture development intensifies. Organizations that invest in building genuine safety cultures — where every employee feels responsible for safety, empowered to act on hazards, and confident that management genuinely prioritizes their well-being — will achieve not only fewer accidents but also higher employee engagement, lower absenteeism, stronger regulatory relationships, and superior organizational reputation. The human and business case for safety culture investment is compelling. This research contributes to the evidence base and practical frameworks available to support that investment.

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