Employee Safety Awareness in a Leading Glove Manufacturing Company in Sri Lanka: Survey-Based in Sri Lanka

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Abstract

This study analyzes occupational safety awareness in a prominent glove production company using a survey-based assessment of workers' knowledge, systematic ability, and safety culture. Substantial compliance levels, with over 90% knowledge in safety training, emergency communication, and essential equipment awareness. Employees also reflected confidence in managing medical emergencies. However, major deficiencies were identified: 20.75% had confusion in selecting appropriate extinguishers, and proactive hazard control was weak, as only 3.77% focused alerting co-workers. perceived hazard varied, with the Chemical Handling Safety module receiving lowest instructional priority despite frequent operational use. These gaps highlight the need for obligatory practice-based training to strengthen critical skills such as response to electrical hazards. The study further recommends adopting a Just Culture framework to reinforce safety as an organizational priority.

1.0 Introduction

Employee safety is essential to occupational health and production. Workers are frequently exposed to accidents, injuries, and occupational illnesses in the apparel industry, construction sector, manufacturing plants, and healthcare occupations. But as major challenges, we can see lapses in regulatory compliance and limited safety awareness among workers in spite of Occupational Safety and Health (OSH) regulations, such as the Factories Ordinance and the Department of Labor regulations. including the National Institute of Occupational Safety and Health (NIOSH) Act, No. 38 of 2009 [MA2]. Specifically, in developing countries, strengthening knowledge, setting up and maintaining a culture of safety is essential for minimizing hazards in working environments and complying with global labor standards.

1.1 Background and Context

The garment and rubber industries, including glove manufacturing, are key to the country's economy and employ the majority of the workforce. Glove production carries multiple risks, including chemical exposure (latex or nitrile), machinery hazards, repetitive strain, and fire from combustible materials. Safety is therefore a critical necessity, not just a regulatory formality. Despite laws like the Factories Ordinance, enforcement and employee adherence remain challenging. This study examines a leading Sri Lankan glove manufacturer to assess shop-floor workers' safety awareness and identify existing gaps.

1.2 Aims & Objectives

The purpose of this study is to investigate the level of workplace safety in Sri Lanka and study factors about behaviors in safety.

Objectives:

1. To assess the employees' knowledge and attitudes about workplace safety.
2. To evaluate the level of training and communication provided by companies.
3. To identify barriers among employees regarding safety awareness.
4. To propose applications to improve the safety awareness of employees and to develop a safety culture.

1.3 Significance and scope of the study

Improved safety consciousness minimizes accidents, absenteeism, and improves efficiency. The study aids organizational leaders and stakeholders in implementing targeted training and promoting safety practices. Focusing on the employees of a glove manufacturing company, it prioritizes safety awareness and attitudes above operational risk control. The results are applicable to Sri Lanka and other economies in the developing countries.

2.0 Literature Survey: Employee Safety in Material-Based Industries

2.1 Accidents and Hazards in Material-Based Manufacturing

Rubber, plastics, and textiles are material-processing industries with high hazards. Injuries are often caused by mechanical (machinery contact, pinching), chemical (solvent or corrosive exposure), or physical (noise, heat, handling stress) hazards. Low safety awareness and poor risk assessment also lead to increased frequencies of accidents. Sri Lankan studies (Kahatapitiya et al., 2022) show common machine operation, material handling, and chemical exposure occurrences, which suggest local safety shortcomings.

2.2 Specific OSH Challenges in the Glove Manufacturing Sub-sector

Glove production, as a niche branch of the rubber industry, involves serious OSH risks like exposure to gas and chemicals, latex sensitization, and repetitive work-induced musculoskeletal diseases. Aggregated rates of work with additional international supply pressures compound these risks (Hasle & Jensen, 2012; Kumara & Jayawardena, 2018). In addition, rubber and chemical combustibility necessitates rigorous fire protection training.

2.3 The Link between Awareness, Training Efficacy, and Safety Culture

Accident prevention is dependent on the proficiency of employees and a proper safety culture. General industry training in all material-processing industries is not sufficient; hands-on, context-specific practical training supports wearing PPE, readiness for emergencies, and safety in general. Practical training reduces accidents, evidenced by fact (Maduranga & Harshani, 2024), and experience-based learning reinforces confidence and upholds safety routines (Reason, 1997).

3.0 Methodology

3.1 Research Design

The study applied a quantitative, illustrative research design adopting a cross-sectional survey method. This was applied to objectively determine the present status of safety awareness among the sample of workers at a particular point in time. The survey-based design is the most appropriate for measuring existing awareness, beliefs, and practices of employees concerning workplace safety.

3.2 Participants

The study engaged 53 workers from a glove factory, randomly sampled across departments (production, engineering, materials, packing) to reduce selection bias.

3.3 Procedure

Data were collected through structured, face-to-face interviews with a standard questionnaire. Interviews were employed rather than written questionnaires to transcend illiteracy issues, preserve question simplicity, and achieve complete answers. Conducted in a personal, unbiased setting, they achieved participation and minimized bias.

3.4 Analysis

All collected data, consisting of categorical (multiple-choice) variables, were evaluated through descriptive statistics. Key tools for analysis comprised:

- Frequency Distribution: Used to determine the absolute number and percentage of respondents selecting each option (e.g., ‘Yes’, ‘No’, ‘Not sure’).
- Cross-Tabulation: To analyze relationships between demographic factors (like ‘Work Experience’ or ‘Safety Training’) and critical safety awareness (like ‘Confident in Emergency’).

3.5 Ethics and Limitations

Ethical permission was received, and verbal agreement with assured confidentiality was ensured from participants. Limitations are limited sample size (N=53) and self-reported data bias.

3.6 Future Improvements

Future research could use a larger, multi-site sample and compare companies with distinct accident rates. Combining empirical observations, such as timed fire drills, with questionnaires could diminish dependence on self-reported data.

4.0 Results and Analysis

4.1 Demographic Profile of Participants

The study surveyed 53 randomly selected employees. The analysis of their demographic data provides the necessary context for interpreting the safety awareness results.

Q1. Age Group (Demographics)

Age Group	Count	Percentage	Total Responses
18-25	11	20.75%	53
26-35	17	32.08%	53
36-45	11	20.75%	53
46-55	11	20.75%	53
Above 55	3	5.66%	53

Most of the respondents (32.08%) are aged 26–35 years, followed by 18–25, 36–45, and 46–55 at 20.75% each, and above 55 at 5.66%. This relatively young labor force indicates the need for lively, simple-to-understand safety instruction.

Q2. Gender (Demographics)

Gender	Count	Percentage	Total Responses
Male	46	86.79%	53
Female	7	13.21 %	53
Prefer not to say	0	0.00%	53

The sample is heavily male-skewed (86.79% male, 13.21% female), usual of heavy manufacturing but limiting relevance, as female perspectives—especially in quality control, packing, or clerical roles—may be marginalized.

Q3. Work Experience in this company (Demographics)

Option	Count	Percentage	Total Responses
Less than 1 year	9	16.98%	53
1-5 years	14	26.42%	53
6-10 years	10	18.87%	53
More than 10 years	20	37.74%	53

The highest respondent group (37.74%) has over 10 years of experience, showing the influence of long-tenured employees on safety culture. Effective orientation is also crucial, as the "Less than 1 year" group is substantial (16.98%).

Q4. Have you received any safety training? (Training Compliance)

Option	Count	Percentage	Total Responses
1. Yes	49	92.45%	53
2. No	4	7.55%	53

A positive finding: 92.45% of employees reported having safety training, showing strong compliance, though training quality warrants further review.

Q5. Do you know where the First Aid boxes are located?

Option	Count	Percentage	Total Responses
Yes	50	94.34%	53
No	3	5.66%	53
Not sure	0	0.00%	53

First Aid box location awareness is nearly flawless at 94.34%. This shows that the company has efficiently marked and hinted at the location of its lowest medical stores, and it is crucial to quickly respond to accidents.

Q6. Do you know where the Fire Extinguishers are located?

Option	Count	Percentage	Total Responses
Yes	51	96.23%	53
No	1	1.89%	53
Not sure	1	1.89%	53

Fire Extinguisher location familiarity is high at 96.23%. This is a superior rate for general fire safety preparedness and bears witness to the clear visibility and notification of such emergency devices.

Q7. Are you aware of which fire extinguisher type is used for which kind of fire?

Option	Count	Percentage	Total Responses
1. Yes, I know	41	77.36%	53
2. I only know a little	11	20.75%	53
3. No	1	1.89%	53

While 77.36% answered with full knowledge, over 20% admit to knowing only "a little". When employed

in a glove factory environment, where there is a risk of chemical or electrical fires, the right option is critical. This wide discrepancy shows that expert, hands-on fire training on the different classes of fire and the correct usage of respective extinguishers is needed.

Q8. Do you know the emergency contact number for medical help at your workplace?

Option	Count	Percentage	Total Responses
Yes	49	92.45%	53
No	3	5.66%	53
Not sure	1	1.89%	53

A strong 92.45% of employees know the emergency contact number. This key piece of information for initiating a rapid response is well-communicated across the workforce.

Q9. If a fire breaks out, what would be your first action?

Option	Count	Percentage	Total Responses
Call the emergency number	37	69.81%	53
Use a fire extinguisher	13	24.53%	53
Run outside immediately	3	5.66%	53
Wait for instructions		0.00%	53

Most respondents (69.81%) correctly identify calling the emergency number first, ensuring professional engagement and proper alarm procedures. A smaller portion (24.53%) would use an extinguisher first, while very few consider running outside (5.66%) or waiting for instructions (0%), indicating a generally good understanding of the need for prompt action.

Q10. If a co-worker gets an electric shock, what is the first step you should take?

Option	Count	Percentage	Total Responses
1. Touch them to pull away	4	7.55%	53
2. Switch off the power before helping	40	75.47%	53
3. Call emergency medical services	8	15.09%	53
4. Do nothing until others arrive	1	1.89%	53

75.47% workers correctly identified the crucial response, “Switch off the power before helping,” indicating effective hazard-specific training. However, 7.55% chose the dangerous option, “Touch them to pull away,” indicating a critical training gap that could lead to a second injury and must be addressed.

Q11. If a co-worker has a heart attack, what would be your first response?

Option	Count	Percentage	Total Responses
Call for medical help immediately	34	64.15%	53
Start CPR if trained	9	16.98%	53
Give water and wait	1	1.89%	53
Move them to a chair	9	16.98%	53

The correct priority of “Call for medical help immediately” was selected by 64.15%. The second action to start CPR (16.98%) is correct for those who are trained. The 16.98% who would attempt to “Move them to a chair” shows a dangerously low level of knowledge of first aid, as handling a casualty improperly may lead to further harm to their condition.

Q12. If your colleague uses an inhaler/medicine and faces breathing difficulty, what should you do?

Option	Count	Percentage	Total Responses
Help them use the inhaler/ medicine	38	71.70%	53
Call a medical emergency	15	28.30%	53
Wait until they recover	0	0.00%	53
Not sure	0	0.00%	53

The responses reflect good judgment, with 71.70% being correct in choosing to "Help them use inhaler/ medicine" that addresses an immediate need to manage a diagnosed condition. The 28.30% who would simply call an emergency are also choosing a safe alternative. The **segment** reflects an awareness of both immediate aid and emergency escalation.

Q13. Do you think employees should share important medical conditions for safety?

Option	Count	Percentage	Total Responses
Yes, definitely	53	100.00%	53
Only with supervisors	0	0.00%	53
No, it's private	0	0.00%	53
Not sure	0	0.00%	53

The results show a surprising and resounding consensus: 100.00% of the respondents believe employees should "Yes, definitely" reveal major medical conditions for safety. The result strongly suggests that, at least in this sample, there seems to be an evident understanding and acceptance that safety has precedence over privacy concerns in the matter of critical medical information.

Q14. If you notice a slippery or wet floor in your department, what would you do?

Option	Count	Percentage	Total Responses
Clean/wipe immediately if safe	43	81.13%	53
Inform cleaning staff	8	15.09%	53
Warn others & place caution sign	2	3.77%	53
Ignore it	0	0.00%	53

Responses show high responsibility, with 81.13% selecting to "Clean/wipe immediately if safe" and none doing nothing. However, only 3.77% choose the optimal response, "Warn others & place caution sign." While employees act to correct hazards, training should prioritize hazard communication to prevent accidents before cleanup.

Q15. Do you feel confident to act during a medical emergency?

Option	Count	Percentage	Total Responses
1. Yes	53	100.00%	53
2. No	0	0.00%	53
3. Not sure	0	0.00%	53

Unexpectedly, 100% of respondents indicated confidence in acting during a medical emergency, showing very high self-efficacy. This depicts earlier findings but, combined with high safety training compliance (Q4), suggests effective practical training that builds staff confidence.

Q16. What kind of safety training is most important?

Option	Count	Percentage	Total Responses
Fire safety & evacuation	11	20.75%	53
First aid & CPR	10	18.87%	53
Electrical safety	3	5.66%	53
Chemical handling safety	4	7.55%	53
ALL	25	47.17%	53

A large plurality of respondents (47.17%) selected the 'all' option; it's good to see. Among the specified options, "Fire safety & evacuation" (20.75%) and "First aid & CPR" (18.87%) were most highly ranked. As the company is a glove manufacturer, the relatively low position of "Chemical handling safety" (7.55%) is of concern, as this is one of the high-risk factors for the industry.

5.0 Discussion

This section presents the quantitative results of the Employee Safety Awareness in a Leading Glove Manufacturing Company survey, categorized into three domains: Demographics, Foundational Safety Knowledge, and Procedural & Safety Culture Insights.

5.1 Demographics and Foundational Compliance

The employees are young but experienced, with the age group 26–35 constituting 31.48%, while 37.74% have over 10 years of service (Q3). Gender distribution is highly skewed, with 86.54% of the participants being male (Q2). Foundation safety compliance is high: 92.45% have received training (Q4), 94.34% are aware of the First Aid box location (Q5), 96.23% are aware of the Fire Extinguisher location (Q6), and 92.45% are aware of the emergency contact number (Q8). These findings reflect good communication and rollout of critical safety resources.

5.2 Procedural and Technical Knowledge: Strengths and Gaps

Critical Emergency Response: 75.47% correctly answered switching off power first in assisting a colleague with electric shock (Q10), reflecting effective hazard-specific training. Similarly, 69.81% ranked calling the emergency number first in case of fire (Q9), reflecting familiarity with escalation procedures.

Technical Gaps: A small but significant minority (7.55%) would touch a shock victim, showing a dangerous knowledge gap requiring urgent intervention. A further 20.75% lack detailed knowledge of fire extinguisher types (Q7), which is hazardous for their inappropriate use in a glove factory containing different combustible substances.

5.3. Safety Culture, Confidence, and Risk Perception

Confidence: 100% of the employees are confident in their ability to handle medical emergencies (Q15), indicating that training effectively translates into practical ability and self-efficacy.

Medical Privacy Consensus: 100% agreed that serious medical conditions should be revealed for safety's sake (Q13), indicating a culture that prioritizes the greater good.

Hazard Control Gaps: Only 3.77% prioritized warning others and posting caution signs for a slippery floor (Q14) first, while 81.13% opted to clean it immediately. This indicates a lack of proactive hazard communication and risk control.

Misaligned Training Priorities: Chemical safety, one of the core hazards, was prioritized first by only 7.55% of participants (Q16), which may indicate that workers are underestimating chemical hazards in relation to fire (20.75%) or First Aid (18.87%).

6.0 Conclusion and Recommendations

The company has successfully developed a very compliant group of employees with good safety foundation knowledge and high self-reported confidence. The study identifies two primary areas for strategic intervention:

6.1 Enhance High-Risk Procedural Training:

Mandate periodic, interactive reminder sessions (e.g., simulation, live demos) to reduce the minority who would be involved in unsafe behaviors (e.g., 7.55% risking electrocution) and to remind them of technical knowledge (e.g., correct fire extinguisher selection).

6.2 Enhance Proactive Safety Culture:

Shift training to proactive management of hazards and communication, specifically, the temporary hazard procedure (e.g., the three steps: Warn, Control, Report). Further, correct the low ranking of Chemical Handling Safety by better communicating the related industrial risks to align employee perception with actual workplace hazards.

6.3 Building a Culture of Shared Ownership for Safety

Apart from training and procedures, the company must develop a strong internal safety culture, where staff members consider safety as everyone's responsibility and not just rules. The "Just Culture" must promote hazard and near-miss reporting without fear of punishment. Leadership must model safe behavior daily, and frontline Safety Teams must make it possible for staff members to recognize and fix hazards such that safety becomes a daily, core value and not a formal requirement.

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8.0 References

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