

# CRITICAL SUCCESS FACTORS FOR SAFETY CULTURE IN MALAYSIA: AN EXPLORATORY STUDY

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for Business





Jabatan Keselamatan dan Kesihatan Pekerjaan  
KEMENTERIAN SUMBER MANUSIA



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA



ENGLISH VERSION

**STUDY ON BENCHMARKING  
OF OCCUPATIONAL SAFETY  
AND HEALTH (OSH)  
CULTURE LEVELS AMONG  
EMPLOYERS AND  
EMPLOYEES IN MALAYSIA**



MALAY VERSION





# Research Background

## KAJIAN PENANDAARASAN TAHAP PEMBUDAYAAN KESELAMATAN DAN KESIHATAN PEKERJAAN (KKP) DI KALANGAN MAJIKAN DAN PEKERJA DI MALAYSIA

This research funded by Department of Safety & Health Malaysia (DOSH) aims to establish an Occupational Safety and Health (OSH) culture model by identifying key elements from the OSH Master Plan, creating an assessment method, and comparing organizations with varying OSH culture levels. The study also involves collecting data for selected sectors, presenting findings in a cultural grid, and creating guidance notes for employers and employees to enhance OSH culture. Additionally, the project evaluates Safety and Health Non-Governmental Organizations' (OSH NGOs) perceptions of OSH enculturation within organizations.



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# Exploratory and Confirmatory Phase

## Pilot Testing:

- Administered initial questionnaire, assessed its performance, and reduce items
- Used Exploratory Factor Analysis (EFA) to identify underlying factors.

## Structure Validity:

- Employed Confirmatory Factor Analysis (CFA) to validate factor structure.
- Refined questionnaire based on CFA outcomes.



# Problem Statement

Despite the acknowledged importance of safety culture, Malaysia grapples with persistent deficiencies in occupational safety and health (OSH) awareness, evident in the frequent occupational incidents reported by DOSH Malaysia. The research highlights the need for a comprehensive study to explore the factors contributing to these challenges, essential for targeted interventions. The study aims to fill this gap by examining the influences on safety culture in Malaysia, with the goal of providing valuable insights to inform policies, improve industry practices, and create a safer work environment.



# Research Questions & Objectives

What are the key construct required for the development of a reliable and valid survey instrument for assessing safety culture in Malaysian organizations?



01

To develop a reliable and valid survey instrument for investigating safety culture factors in organisations in Malaysia

What are the major factors influencing the safety culture model in Malaysian organizations, from the perspectives of both employers and employees?



02

To extract the factors influencing the safety culture model in Malaysia, incorporating perspectives from employers and employees, and exploration of associated outcomes with these factors.

What empirical evidence supports the validity of the identified safety culture factors in Malaysian organizations?



03

To validate the extracted factors through a comprehensive review of literature and empirical findings



# Research Scope



## Scope 1

This study is geographically-confined to Malaysia, acknowledging the contextual, regulatory and cultural elements unique to this nation may have influence on the safety culture.



## Scope 2

The study is limited to investigating safety culture elements in Malaysia organisations emphasising on organisational level but the range covers various sectors and industries.

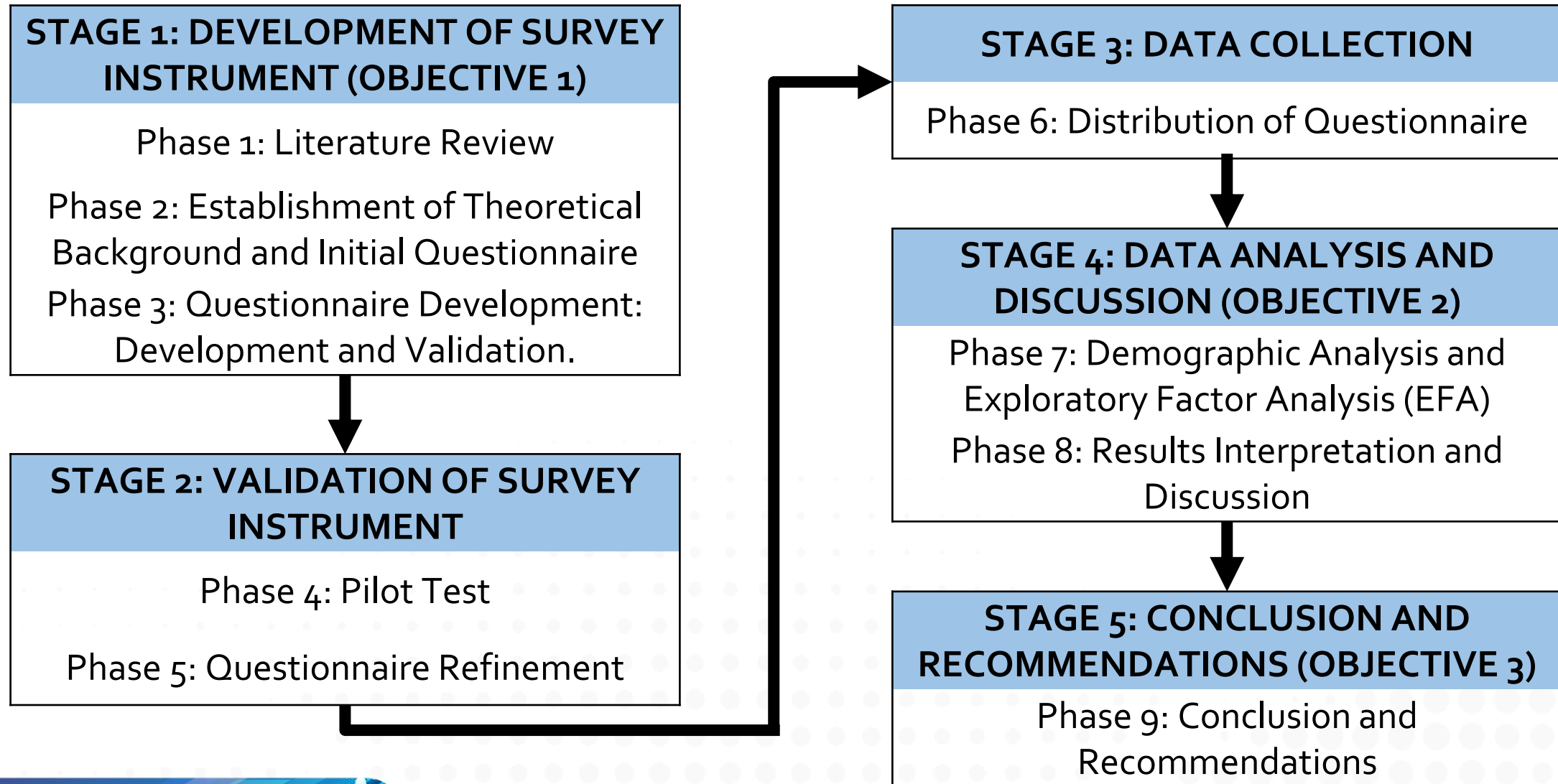


## Scope 3

The three-month study predominantly employs a quantitative approach, utilizing statistical tools such as IBM® Statistical Package for Social Science (SPSS) for data processing and analysis



# Research Design







Quantitative Analysis of Demographics

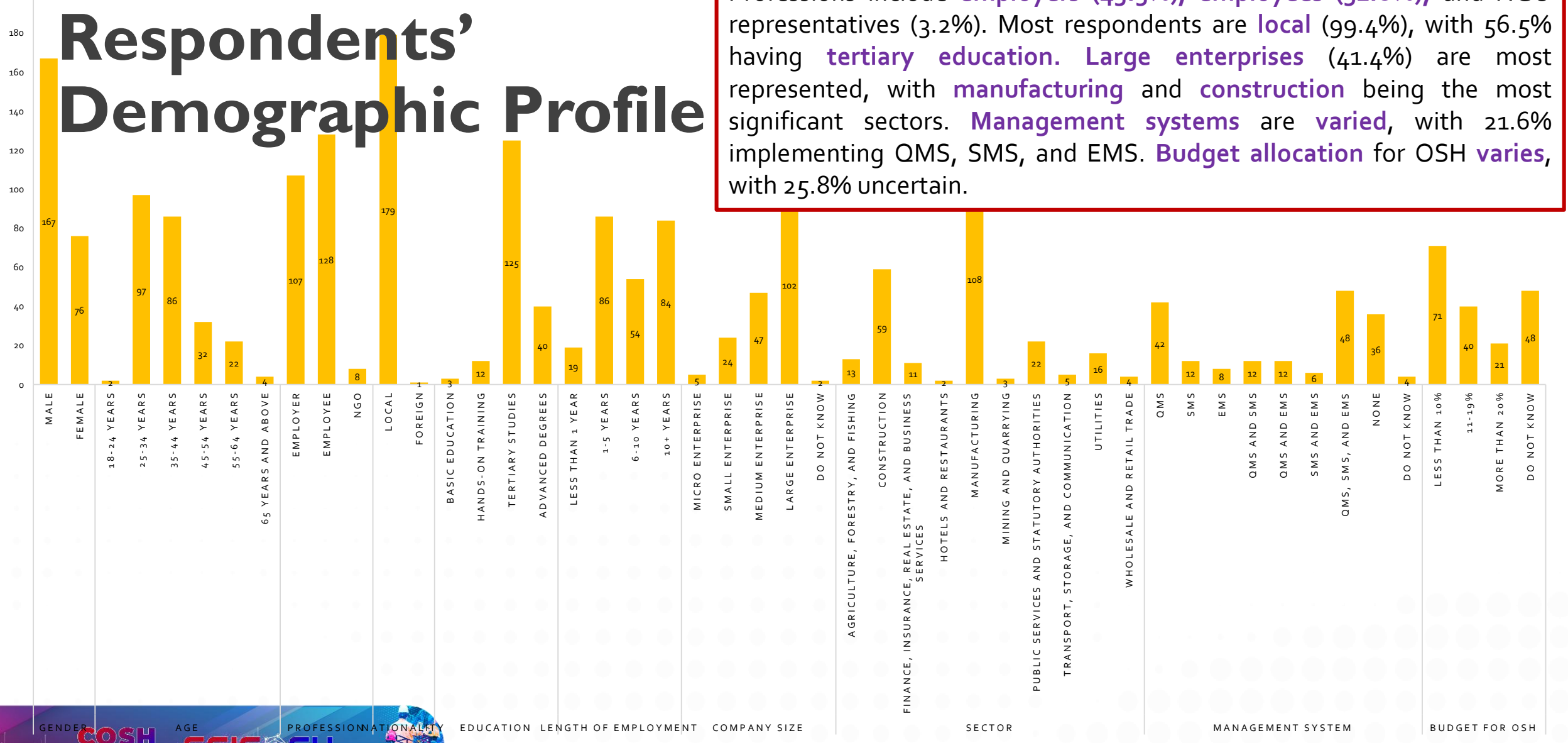
- Combined online and manual methods, total data = 279
- Total clean data = 243.

# Data Collection

No.	Program	Method	Distributed	Returned	Response Rate	Clean data
1	Conference On QHS2E Innovation for Safer and Healthier Systems & Technology (UNBOX)	Online	313	76	24.3 %	59
2	Konvensyen SOHELP DIY Kebangsaan 2023 (SOHELP)	Online	321	162	50.5 %	145
3	The 9th MBAM Seminar on Occupational Safety & Health (OSH) & Workshop on Minimizing Risks For Operators And Improving Productivity When Working At Heights (MBAM)	Manual	55	41	74.5 %	39
Total			689	279		243

# Respondents' Demographic Profile

The demographic profile of respondents is diverse, with a majority of **males** (68.7%), predominantly **aged 25-34** (44.6%) and **35-44** (39.7%). Professions include **employers** (43.5%), **employees** (51.8%), and NGO representatives (3.2%). Most respondents are **local** (99.4%), with 56.5% having **tertiary education**. **Large enterprises** (41.4%) are most represented, with **manufacturing** and **construction** being the most significant sectors. **Management systems** are varied, with 21.6% implementing QMS, SMS, and EMS. **Budget allocation** for OSH varies, with 25.8% uncertain.



Frequency

# Quantitative Analysis Using EFA

- Analysis of factors influencing safety culture in Malaysia: EFA used for dimensionality reduction.
- Factor analysis based on Principal Component Analysis (PCA) extraction and Varimax Rotation methods.
- Principal Components Analysis employed to extract maximum variance, reducing variables into components.
- Factor loading criterion set at an absolute value of 0.50 for practical significance (Tabachnick & Fidell, 2007).

Rotated Component Matrix	Exploratory Factor Analysis, EFA (n=243)						
	Items / Dimensions	1	2	3	4	5	6
F1-1 Management frequently communicates the importance of safety in our workplace.	0.732						
F1-2 Our management is proactive in implementing safety measures.	0.726						
F1-3 Managers set a good example by following safety procedures themselves.	0.731						
F1-4 Our management takes immediate action when a safety concern is reported.	0.776						
F1-5 Safety is a top priority in decision-making at the management level.	0.823						
F2-2 I receive regular updates on changes to safety regulations and procedures.	0.581						
F2-3 There is open dialogue about safety concerns between employees and management.	0.570						
F2-4 I am comfortable discussing safety issues with my supervisor.	0.678						
F2-5 Safety meetings are frequent and informative.			0.630				
F3-1 Employees who adhere to safety protocols are publicly recognized.					0.839		
F3-2 There are clear incentives for maintaining a strong safety record.					0.862		
F3-3 Employees who suggest safety improvements are rewarded.					0.878		
F3-4 Recognition for safety compliance encourages me to follow safety protocols.					0.872		
F3-5 Our reward system motivates employees to prioritize safety.					0.884		
F4-2 I feel comfortable reporting safety concerns to management.	0.567						
F4-3 Management responds to safety reports in a fair and timely manner.	0.593						
F4-4 I trust that my safety is not compromised for productivity or cost reduction.	0.676						
F4-5 The actions of management align with their statements about safety.	0.664						
F5-1 I am actively involved in safety planning and improvements.			0.658				
F5-4 I frequently participate in safety-related discussions and activities.			0.593				
F6-1 I have received sufficient training on safety procedures relevant to my role.				0.618			
F6-2 Safety education and training are regularly provided and updated.				0.656			
F6-3 I understand the reasons behind the safety protocols in place.				0.681			
F6-4 I feel confident in my ability to respond to a safety incident because of the training I've received.				0.732			
F6-5 The training provided has increased my awareness of potential hazards in my workplace.				0.739			
F7-1 I am competent in the safety procedures required for my role.						0.700	
F7-2 I am confident in my ability to use safety equipment properly.						0.727	
F7-3 Employees regularly receive training to update their safety-related skills.						0.726	
F7-4 I have the necessary skills to identify potential safety hazards in my workplace.						0.756	
F7-5 I understand how my actions can influence safety outcomes.						0.735	
F8-2 The safety rules in place are viewed positively by employees.		0.582					
F8-3 I understand the importance of adhering to OSH regulations.		0.649					
F9-1 Accidents and near-misses are reported without fear of retaliation.		0.710					
F9-2 Accident reports are used to improve safety rather than to assign blame.		0.717					
F9-3 There is a clear and easy process for reporting accidents and near-misses.		0.742					
F9-4 I believe that the analysis of accidents leads to safety improvements.		0.761					
F9-5 Management takes accident reports seriously and acts on them promptly.		0.762					
F10-1 Employees' adherence to safety procedures is regularly monitored.		0.639					
F10-2 I am comfortable with the level of safety-related supervision in my workplace.		0.675					
F10-3 Employee behavior is assessed to improve safety, not to punish.		0.686					
F10-4 Monitoring of safety behaviors has led to noticeable safety improvements.		0.661					
F10-5 Regular safety checks and observations contribute to a safer workplace.		0.637					
Total number of items	12	12	3	5	5	5	



# Reliability Statistics

	Factors					
	1	2	3	4	5	6
<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)</b>				0.952		
<b>Bartlett's Test of Sphericity</b>			0.00 (Sig.)			
<b>Eigenvalue</b>	3.602	21.511	1.045	1.322	1.828	2.421
<b>% of Variance</b>	17.77	18.88	5.386	10.145	11.442	11.924
<b>Mean</b>	3.973	4.076	4.082	4.107	3.235	4.145
<b>Standard Deviation</b>	0.879	0.827	0.873	0.864	1.091	0.818
<b>Reliability (Cronbach Alpha)</b>	0.952	0.96	0.858	0.936	0.953	0.945

Observed variables intercorrelate significantly

Excellent suitability for factor analysis.

75.55% of the total variance

High reliability



# Extracted Safety Culture Factors

EFA yielded a six-factor construct which accounts for 75.55 percent of the total variance

- Factor 1: "Leadership and Communication"
- Factor 2: "Monitoring Behavior, Reporting and Analysis of Accidents or Incidents"
- Factor 3: "Attitude towards OSH Improvements"
- Factor 4: "Education on OSH"
- Factor 5: "Rewards and Recognition"
- Factor 6: "Employees' Competences"



# Factor Analysis Summary: Labels, Eigenvalues, Variance, Rank

Factors Label	Eigenvalue	% of Variance	Rank
Factor 1: Leadership and Communication	3.6	17.77	2
Factor 2: Monitoring Behavior, Reporting and Analysis of Accidents or Incidents	21.51	18.88	1
Factor 3: Attitude towards OSH Improvements	1.05	5.4	6
Factor 4: Education on OSH	1.32	10.16	5
Factor 5: Rewards and Recognition	1.83	11.44	4
Factor 6: Employees' Competences	2.42	11.92	3



# Literature Dimensions and Rankings

Literature Dimensions	Number of citations	Rank from literature	Rank based on Malaysia study
Monitoring employees' behavior *	17	3	1
Reporting and analysis of accidents *	14	8	1
Leadership	22	1	2
Communication	16	4	2
Employees' competences	17	2	3
Rewards and Recognition *	10	9	4
Education on OSH	15	5	5
Employee engagement	14	6	5
Attitude towards OSH regulations	14	7	6
Trust between managers and employees	8	10	6

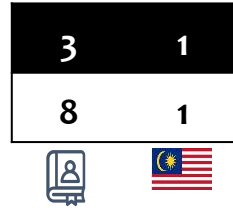
\*Significantly different



# Factors Influencing Safety Culture: Literature vs Malaysian Context

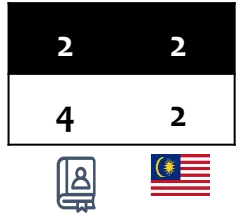
## Rank 1: Monitoring Behavior, Reporting, and Analysis of Accidents or Incidents (18.88%)

F9-5 Management takes accident reports seriously and acts on them promptly.  
 F9-4 I believe that the analysis of accidents leads to safety improvements.  
 F9-3 There is a clear and easy process for reporting accidents and near-misses.  
 F9-2 Accident reports are used to improve safety rather than to assign blame.  
 F9-1 Accidents and near-misses are reported without fear of retaliation.  
 F10-3 Employee behavior is assessed to improve safety, not to punish.  
 F10-2 I am comfortable with the level of safety-related supervision in my workplace.  
 F10-4 Monitoring of safety behaviors has led to noticeable safety improvements.  
 F8-3 I understand the importance of adhering to OSH regulations.  
 F10-1 Employees' adherence to safety procedures is regularly monitored.  
 F10-5 Regular safety checks and observations contribute to a safer workplace.  
 F8-2 The safety rules in place are viewed positively by employees.



## Rank 2: Leadership and Communication (17.77%)

F1-5 Safety is a top priority in decision-making at the management level.  
 F1-4 Our management takes immediate action when a safety concern is reported.  
 F1-1 Management frequently communicates the importance of safety in our workplace.  
 F1-3 Managers set a good example by following safety procedures themselves.  
 F1-2 Our management is proactive in implementing safety measures.  
 F2-4 I am comfortable discussing safety issues with my supervisor.  
 F4-4 I trust that my safety is not compromised for productivity or cost reduction.  
 F4-5 The actions of management align with their statements about safety.  
 F4-3 Management responds to safety reports in a fair and timely manner.  
 F2-2 I receive regular updates on changes to safety regulations and procedures.  
 F2-3 There is open dialogue about safety concerns between employees and management.  
 F4-2 I feel comfortable reporting safety concerns to management.



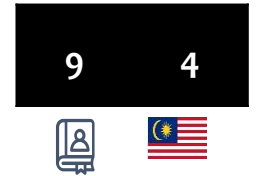
## Rank 3: Employees' Competences (11.92%)

F7-4 I have the necessary skills to identify potential safety hazards in my workplace.  
 F7-5 I understand how my actions can influence safety outcomes.  
 F7-2 I am confident in my ability to use safety equipment properly.  
 F7-3 Employees regularly receive training to update their safety-related skills.  
 F7-1 I am competent in the safety procedures required for my role.



## Rank 4: Rewards and Recognition (11.44%)

F3-5 Our reward system motivates employees to prioritize safety.  
 F3-3 Employees who suggest safety improvements are rewarded.  
 F3-4 Recognition for safety compliance encourages me to follow safety protocols.  
 F3-2 There are clear incentives for maintaining a strong safety record.  
 F3-1 Employees who adhere to safety protocols are publicly recognized.



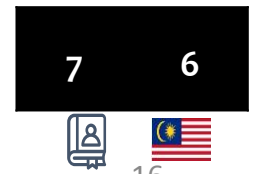
## Rank 5: Education on OSH (10.16%)

F6-5 The training provided has increased my awareness of potential hazards in my workplace.  
 F6-4 I feel confident in my ability to respond to a safety incident because of the training I've received.  
 F6-3 I understand the reasons behind the safety protocols in place.  
 F6-2 Safety education and training are regularly provided and updated.  
 F6-1 I have received sufficient training on safety procedures relevant to my role.



## Rank 6: Self-regulation towards OSH Improvements (5.4%)

F5-1 I am actively involved in safety planning and improvements.  
 F2-5 Safety meetings are frequent and informative.  
 F5-4 I frequently participate in safety-related discussions and activities





# Summary of Findings

## 01 Obj. 1. Survey Instrument Development

- Achieved high reliability (Cronbach's alpha: 0.858 to 0.96).
- Developed a reliable survey instrument for studying safety culture in Malaysian organizations.

## 02 Obj. 2. Factors Influencing Safety Culture

- Extracted six key factors:
  - ✓ Rank 1: "Monitoring Behavior, Reporting, and Analysis of Accidents or Incidents" as the most significant factor in Malaysian safety culture.
  - ✓ Rank 2: "Leadership and Communication,"
  - ✓ Rank 3: "Employees' Competences,"
  - ✓ Rank 4: "Rewards and Recognition,"
  - ✓ Rank 5: "Education on OSH," and
  - ✓ Rank 6: "Self-regulation towards OSH Improvements."

## 03 Obj. 3. Validate derived safety culture factors through literature and empirical review

- Successful validation achieved through a detailed examination of existing literature and empirical data.
- Factors compared against established theories, ensuring their relevance in the Malaysian organizational context.



# Research Contributions

## Development of a Robust Survey Instrument:

- Created a reliable survey tool for studying safety culture factors in Malaysian organizations.
- Valuable for future research and practical applications to assess and improve safety culture.

## Insights into Industry-Specific Priorities:

- Revealed variations in safety culture factors' importance across industries.
- Laid the groundwork for targeted safety initiatives, considering unique challenges in specific sectors.

## Practical Recommendations for Organizations:

- Provided practical insights for organizations to enhance OSH performance.
- Data-driven research supports informed decisions for improving safety practices.



# Recommendations for Future Research

## Examine Organizational Size Impact:

- Investigate how safety culture aspects vary based on the size of an organization.
- Explore potential differences in safety dynamics between small/medium-sized firms and larger organizations.

## Focus on Employee Perceptions:

- Conduct studies specifically targeting employee perceptions of safety culture factors.
- Gain valuable insights into how employees view the organization's approach to safety for more effective interventions.

## Incorporate Qualitative Research:

- Use qualitative research methods like focus groups and interviews in addition to quantitative approaches.
- Collect diverse perspectives and narratives to achieve a comprehensive understanding of safety culture dynamics.



**COSH**  
2024  
24<sup>th</sup> CONFERENCE AND  
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**THANK YOU**