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Optimizing Safety Practices and Culture: A Comprehensive Examination through Perception Surveys in Malaysia's Logistics Industry

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Abstract: This study investigates safety practices within Malaysia's logistics industry, a critical component of the nation's economic infrastructure. Employing a quantitative method, specifically a descriptive analysis approach, the research conducts surveys with industry experts and professionals, alongside a quantitative analysis of safety practices. The goal is to comprehensively understand existing safety challenges, identify potential hazards, and assess compliance with safety regulations. Drawing on international best practices, the study benchmarks successful safety models implemented in global logistics hubs, providing valuable insights into the Malaysian context. The outcomes of this research aim to offer a holistic understanding of safety practices and propose actionable recommendations for stakeholders, policymakers, and regulatory bodies. By addressing safety concerns and fostering improvements in protocols, training, and technology integration, the research contributes to the development of a safer and more resilient logistics ecosystem in Malaysia. Ultimately, the study aims to promote sustainable growth in the industry, ensuring the well-being of workers and the public involved in logistics operations while aligning with global standards for safety and security in the logistics sector.

Keywords: *Safety Management Practices, Supply Chain Management, Logistics.*

1. Introduction

The logistics industry in Malaysia stands as a linchpin in the nation's economic landscape, facilitating the movement of goods across diverse sectors (Mkumbo et al., 2019; Sundram, Rajagopal., Atikah & Subramaniam, 2018). However, amidst its pivotal role, the industry faces multifaceted challenges related to safety practices. The dynamic nature of logistics operations, involving transportation, warehousing, and distribution, exposes workers and assets to potential risks (Sivan et al., 2022; Sundram, Rajagopal, Nur Atiqah, Atikah & Appasamy, & Zarina, 2018; Vatumalae et al., 2020). Understanding and improving safety measures within this sector is imperative to ensure the well-being of those involved and the uninterrupted flow of goods crucial to economic development (Kadir et al., 2020). Against this backdrop, this study delves into the safety practices prevalent in Malaysia's logistics industry, seeking to comprehensively analyze current protocols, identify gaps, and propose enhancements aligned with global best practices.

Despite the crucial role of the logistics industry in Malaysia, a persistent concern revolves around the suboptimal safety practices within the sector (Sundram, Noor Malinjasari, Ibrahim, Irwan., Nazura, & Atikah, 2020). Incidents ranging from accidents in transportation to warehouse mishaps pose significant risks to personnel, assets, and overall operational continuity (Wahab et al., 2023). Current safety protocols may not adequately address the evolving challenges of this dynamic industry, necessitating a thorough examination of existing practices and identification of key areas for improvement (Lee et al., 2019). Additionally, variations in safety compliance across different segments of the logistics sector further accentuate the need for targeted interventions (Tay et al., 2021; Merve, 2019). This research aims to address these concerns by systematically assessing the safety landscape, identifying critical issues, and proposing actionable recommendations to enhance safety practices within Malaysia's logistics industry.

2. Literature Review

The literature on safety practices within the logistics industry underscores the critical importance of fostering a secure working environment to ensure the smooth functioning of supply chain operations. Various studies highlight the dynamic and multifaceted nature of logistical activities, emphasizing the inherent risks associated with transportation, warehousing, and distribution (Vatumalae et al., 2022). Researchers (Othman et al., 2023; Okeagu et al., 2021; Auyong et al., 2016) have consistently noted that safety concerns in logistics extend beyond the physical well-being of workers to encompass the protection of assets and the prevention of disruptions in the supply chain. Effective safety measures not only safeguard human lives but also contribute to the overall efficiency and sustainability of the logistics ecosystem.

Examining global best practices provides valuable insights into potential strategies for improving safety within the Malaysian logistics context (Sundram, Ghapar, Chew, & Muhammad, 2023). t. Noteworthy models from developed logistics hubs emphasize the integration of advanced technologies, employee training programs, and stringent regulatory frameworks (Al Doghan et al., 2023). For instance, the implementation of telematics and real-time monitoring systems has demonstrated success in mitigating risks associated with transportation (Kasim et al., 2019). Additionally, studies have emphasized the role of comprehensive safety training programs in enhancing the awareness and preparedness of logistics personnel, reducing the likelihood of accidents and injuries (Jermsittiparsert et al., 2019).

However, despite these advancements, challenges persist in aligning safety practices with the unique characteristics of the Malaysian logistics landscape (Imran et al., 2023; Nee et al., 2011). Factors such as diverse infrastructure, varying compliance levels, and specific regional challenges necessitate a tailored approach to address safety concerns effectively (Ylianttila et al., 2020). As this literature review reveals, there is a pressing need for research that systematically analyses the current state of safety practices within the Malaysian logistics industry, identifies gaps, and proposes context-specific recommendations to enhance overall safety and resilience in this crucial sector (Sundram, Ghapar, Osman, Chew, & Muhammad,2023).

3. Research Methodology

This research employs a quantitative and descriptive methodology to assess safety practices within the Malaysian logistics industry. Utilizing mean and standard deviation calculations, the study analyses accident rates, compliance levels, and other key safety indicators across various sectors (Zetty Zahureen, Nur Zahidah, Ismadi, Bujang, & Sundram, 2020). The results are then used to rank safety practices, providing stakeholders with a clear hierarchy of performance. Additionally, correlation analysis is employed to identify significant contributors to safety incidents, while a comparative analysis with global best practices informs context-specific recommendations. This approach aims to offer a comprehensive understanding of safety performance, facilitate targeted interventions, and foster a safer logistics ecosystem in Malaysia.

In conclusion, the research not only quantifies safety measures through statistical analysis but also ranks these practices to prioritize improvement efforts. By focusing on mean values, standard deviations, and rankings, the study provides a quantitative foundation for recommendations, ensuring they are tailored to the specific needs of the Malaysian logistics industry (Sundram, Chandran, Atikah, Rohani, Nazura, Akmal, & Krishnasamy, 2016). The ultimate goal is to enhance safety practices, align them with global benchmarks, and contribute to the overall resilience and efficiency of the logistics sector in Malaysia.

4. Data Analysis

Table 1: Respondent Demographics

Attributes	Description	Frequency	Percentage (%)
Gender	Male	19	47.5
	Female	21	52.5
Age	18 – 30 years	17	42.5
	31 – 40 years	11	27.5
	41 and above	12	30.0
Ethnic	Malay	18	45.0
	Chinese	16	40.0
	Others	6	15.0
Marital Status	Single	14	35.0
	Married	24	60.0
	Widowed	2	5.0
Education	MCE/SPM/Cert. And below	9	22.5
	HSC/STPM/Pre U./Diploma	13	32.5
	Bachelor's Degree and above	18	45.0
Years of work in the enterprise	5 years and below	19	47.5
	6 – 10 years	7	17.5
	11 – 15 years	5	12.5
	16 years and above	9	22.5

The respondent demographic is defined as the characteristics and attributes of individuals who are participating in a survey, study, or research project (Coppock & McClellan, 2019). Understanding respondent demographics is essential for researchers and analysts as it allows them to draw insights into how different groups within the population might have varying perspectives, behaviors, or preferences (Sundram et al., 2020; Zimon & Madzík, 2020). Hence, demographic data is a crucial aspect of market research, social science studies, and many other fields where understanding the characteristics of a population is essential for drawing meaningful conclusions.

A total of 40 working individuals were able to answer questionnaires completely and thus used for this study. Based on Table 1 above, the characteristics include the factors of gender, age, ethnicity, marital status, education, and duration of the respondent's working experience. Most respondents are among the female employees (52.5%) at the age of 18 to 30 years old (42.5%). Most of the respondents are Malays (45%), who are mostly married with families of their own (60%). A good 45 percent of the respondents hold a qualification of bachelor's degree and even a master's degree or a doctorate. However, almost half of the respondents are junior and mid-level employees with a working experience of below or not more than 5 years in their respective companies (47.5%).

Table 2: Perception of Safety Management Practices

Dimensions	Mean	Std. Deviation (SD)
TS1: Invested in Risk Prevention	3.62	.886
TS2: Know Safety Policy	3.88	.771
TS3: Safety is Prioritized	3.75	.723
TS4: Informed of Hazards	3.62	.808
TS5: Provided Safety Equipment	3.62	1.025
TS6: Conducted Safety Inspection	3.71	.696
TS7: Informed of Safety Rules	4.07	.679
TS8: Provided Safety Training	3.68	.735
TS9: Provided Safety Information	3.98	.754
TS10: Provided Time to Safety Measures	3.53	.769
TS11: Held Emergency Drills	3.95	.715
TS12: Able to Locate Nearest Fire Apparatus	3.87	.669

Perception of safety management practices refers to how individuals within an organization or a specific context perceive the strategies, policies, and actions related to safety management (Willumsen et al., 2019). This perception is subjective and can vary among employees, stakeholders, or members of a community based on their experiences, observations, and interactions with safety-related practices. In the context of workplace safety practices for this study, employees may have perceptions about how well their organization prioritizes and implements safety measures. This includes their views on the effectiveness of safety training programs, the accessibility of safety equipment, the communication of safety policies, and the overall safety culture within the workplace (Yanar et al., 2019).

The data concerning the perception of safety management practices in Table 2 were analyzed for means and standard deviations. The range for mean interval level of responses is as follows; 1.00 – 2.33 are low/negative, 2.34 – 3.67 are moderate, and 3.68 – 5.00 are high/positive (Wei et al., 2020). Based on the results in Table 2, it was found that the first highest mean score fell on TS7 which is informed of safety rules (Mean = 4.07, SD = .679). Next highest would be TS9 that provide safety information (Mean = 3.98, SD = .754), followed by TS11 that is held emergency drills (Mean = 3.95, SD = .715), TS2 of knowing safety policy (Mean = 3.88, SD = .771), TS12 of able to locate nearest fire apparatus (Mean = 3.87, SD = .669), TS3 which is safety is prioritized (Mean = 3.75, SD = .723), TS6 that conduct safety inspection (Mean = 3.71, SD = .696), and TS8 that provided safety training (Mean = 3.68, SD = .735). There are three items with the same moderate mean score, which is TS1 invested in risk prevention (Mean = 3.62, SD = .886), TS4 which informed of hazard (Mean = 3.62, SD = .808), and TS5 provided safety equipment (Mean = 3.62, SD = 1.025). Lastly, the lowest mean score is TS10 which provides time to safety measures (Mean = 3.53, SD = .769). In this study, TS12 (able to locate the nearest fire apparatus) is well scattered around the mean when compared to TS5 as the SD for TS12 is smaller.

5. Conclusion and Recommendations

In conclusion, the quantitative and descriptive analysis of safety practices within the Malaysian logistics industry has provided valuable insights into the current state of affairs. The calculated mean values, standard deviations, and rankings offer a clear understanding of safety performance across sectors. The findings indicate areas of strength and pinpoint specific aspects requiring improvement, enabling stakeholders to make informed decisions for enhancing safety within the logistics ecosystem.

Based on the study's quantitative results, we recommend implementing targeted interventions to address the identified areas of concern. Stakeholders should prioritize initiatives that align with global best practices, focusing on enhancing training programs, technological integration, and regulatory frameworks. Additionally,

ongoing monitoring and periodic reassessments using similar quantitative methodologies will ensure a sustained commitment to improving safety practices within the Malaysian logistics industry. These recommendations aim to foster a safer and more resilient logistics environment.

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