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RELATIONSHIP BETWEEN SAFETY CULTURE AND SAFETY PERFORMANCE IN SME MALAYSIA

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Abstract— Small and medium enterprises (SME) in Malaysia although contribute to 97.3% of the total business establishment, still facing safety issues in their organization. There are many different elements contribute to safety culture, all of which work together to produce safety performance. The purpose of this study is to investigate the connection between Malaysian SME safety culture and safety performance. The safety culture and safety performance were measured by adopting an established questionnaire. A total of 263 valid questionnaire responses were collected from the local SMEs based on DOSH Malaysia database. Reliability test was performed using IBM SPSS version 27, and the results showed that the survey is reliable with a global Cronbach's Alpha score of 0.97. A theoretical model was constructed to test

the correlation between safety culture and safety performance.

I. Introduction

As Malaysia's economy rapidly develops, driven by the significant contribution of small and medium enterprises (SME), occupational safety in these enterprises has often been neglected. SMEs account for 97.4% of Malaysia’s industries [1], but they face challenges in adhering to formal safety management systems, laws, and regulations. SMEs often lack access to supportive organizations and relevant risk prevention information.

Despite the significant role SMEs play in Malaysia's economy, there is a lack of definitive statistics from Department of Occupational Safety and Health (DOSH) Malaysia regarding occupational safety and health specific to SMEs. The absence of this data is attributed to SMEs' incapability, leading to the underestimation of the costs of occupational accidents and diseases.

In this context, the relationship between safety culture and safety performance becomes increasingly crucial for organizations, particularly SMEs in Malaysia. A strong safety culture, characterized by shared beliefs, attitudes, and proactive behaviour towards safety, leads to effective risk management and reduced incidents. In contrast, a weak safety culture can result in increased risk-taking and higher incident rates. For SMEs, fostering a robust safety culture is essential not only for improving safety performance but also for creating a safer working environment overall. This requires a commitment to strong safety leadership, enhanced safety knowledge, active employee involvement in safety practices, and improved machine safety protocols [2].

This study aims to identify the relationship between safety culture and safety performance in term of SMEs in Malaysia. By addressing these elements,

SMEs can better manage occupational risks and contribute to the broader goal of workplace safety in Malaysia.

A. SME in Malaysia

In Malaysia, SMEs are overseen by SME Corp Malaysia, which aims to elevate micro, small, and medium enterprises (MSMEs) to higher levels. SMEs are categorized into manufacturing and services or other sectors and providing employment for 7.3 million people [3].

Given the significant employment provided by SMEs, it is essential to foster a strong safety culture to protect the health and welfare of workers. However, safety in SMEs is a critical concern, as 80% of workplace accidents are attributed to these enterprises [4].

B. Safety Culture in SME

SMEs often focus on production over safety, leading to a culture where safety officers' concerns are frequently ignored, and workers lack a sense of ownership over safety practices [5].

The absence of detailed and specific Occupational Safety and Health (OSH) statistics for SMEs makes it difficult to assess the true impact of accidents and injuries in this sector. Even though programs and regulations have evolved to promote self-regulation in OSH, high standards of safety culture are not widely practiced by SMEs. Studies indicate that managerial engagement, focused training, and government initiatives by the DOSH can enhance OSH compliance in SMEs [6]. Key challenges such as lack of funding and technical know-how must be addressed to promote positive safety outcomes. By concentrating on safety involvement and compliance, SMEs can better reduce incidents and cultivate a safety-awareness culture, thereby improving their overall safety performance.

C. Safety Performance

Combining leading (focus on identifying causes and preventing accidents before they occur) and lagging indicators

(post-accident analysis) offers a more thorough analysis of health and safety performance, providing both retrospective and immediate assessments of safety measures. This comprehensive understanding helps organizations continuously improve their safety procedures and prevent problems before they occur.

II. Methodology

The current research employed a quantitative method for data collection and analysis. A hypothetical model of the relationships between safety culture and safety performance in Malaysian SMEs was developed using scientific literature. Safety culture and safety performance were assessed through a questionnaire survey.

A. Questionnaire Survey

The safety questionnaire survey focuses on understanding the safety perceptions of workers in SMEs that comprised of three sections. The first section is designed to gather demographic information, covering personal attributes (age, gender), knowledge level (education level and work experience), work-related attributes (employee status, working level), and organizational attributes (company size, sector, region, OSH budget, ISO certification).

The safety culture of SME workers was assessed in the second section using a questionnaire[7] that covers major safety culture factors in the specific context of Malaysia. The questionnaire comprises six factors with a total of 36 items and utilizes a 5-point Likert scale ranging from "1=Strongly Disagree" to "5=Strongly Agree" for gauging respondents' agreement. Therefore, the questionnaire[7] is deemed a suitable tool for assessing the occupational safety culture of SME workers in Malaysia.

In the 11 questions of the third section, the safety performance of the workers in the SME was assessed using two indicators: lagging and leading indicators. Six questions were focused on lagging indicators, these were devised to assess the

occupational injuries of the participants over the past year. The questionnaire[7] is established because it was tailored to Malaysia's climate and has been verified by many regulatory bodies, DOSH, and industrial representatives in Malaysia.

B. Participants

The workers in the SMEs sector across Malaysia were the focus of the sample. To facilitate distribution, the questionnaire was transformed into a Google Form. Subsequently, the Google link was shared with DOSH Malaysia, who then disseminated it to all SMEs organizations in Malaysia. Initially, the aim was to gather responses from 800 respondents in the SMEs sector. A total of 263 responses were obtained from the Google link, which represents 33% of the target. The questionnaire survey was conducted over a period of three months from December 2023 to March 2024.

C. Data Analysis

Data analysis began with a thorough review to address any missing data, outliers, and suspicious observations. Ensuring data quality is essential before proceeding to more advanced analyses. Descriptive statistics and reliability assessments were then conducted using IBM SPSS version 27 [8].

PLS-SEM then focuses on maximizing the explained variance in the endogenous constructs rather than fitting the observed covariance matrix, making it more suitable for exploratory research and studies with smaller sample sizes or non-normal data distributions [9]. In this study, PLS-SEM was utilized to explore the direct correlation between the latent variables of safety culture and safety performance. The use of PLS-SEM was justified because it is more robust in situations where the sample size is limited, as is often the case with research on SMEs. Additionally, PLS-SEM is well-suited for predictive modelling, which aligns with the study's goal of understanding the impact of

safety culture on safety performance. A reflective structural equation model was developed, which included two measurement models. One of these measurement models aimed to assess the safety culture of workers in SMEs.

The safety performance measurement model was the second one. It assesses safety performance's connection through two primary latent constructs (lagging and leading indicators). The structural model has analysed the direct link between the first order variable (six factor of safety culture) and the second order variables (safety culture as a whole).

III. Results and Discussion

The data collection period spanned three months, from December 2023 to March 2024. Out of 800 distributed surveys, 263 responses were obtained, yielding a 33% response rate. This rate is considered acceptable according to sample size calculation which only needed 140 responses to obtain 95% confidence level with a 5% margin of error.

A. Descriptive statistics

Descriptive analysis was conducted to understand the demographics of the respondents, including (e.g., gender, age, profession, education level, and length of employment).

The descriptive statistics shows that 52.5% of the respondents are male, while the remaining 47.5% are female. Additionally, 40.3% of respondents are between the ages of 25-34, indicating a relatively young workforce in the SMEs. Both small and medium enterprises are equally represented in the survey, with 49% and 51%, respectively. The manufacturing sector contributes the most to the survey, accounting for 36.5%, aligning with Malaysia's largest economic sector.

Next is the information regarding the companies: 55.9% of respondents are from the central region, reflecting Selangor's role as the main hub of Malaysia's economy. Additionally, 33.8% of respondents' companies have ISO 9001:2015 (QMS)

certification. Lastly, 38% of respondents have no information about their company's budget for OSH implementation, and among respondents aware of their company's OSH budget, the highest percentage (14.8%) reported that only 1-2% of the budget is allocated to OSH initiatives. The data was then analyzed by using IBM SPSS version 27. Internal consistency of the questionnaire was ensured through Cronbach's Alpha. The global Cronbach's Alpha value for the safety culture survey is 0.973. This high level of consistency suggests that the survey is effective in reliably assessing safety culture.

B. Propose Theoretical Model

Previous studies have proven that safety culture does have an effect on safety performance. The questionnaire assesses safety culture based on six factors which is Monitoring, Leadership, Rewards, Attitude and Employee's Competence. A safety performance map show the progression towards Occupational Health Safety and suggestive causal linkages among the components influencing it [10]. But there is limited study conducted on the SMEs sector specifically in Malaysia. Figure 1 shows the structural model to identify the relationship between safety culture and safety performance. F1 to F6 are safety culture factors, SC is Safety Culture and SP is Safety Performance.

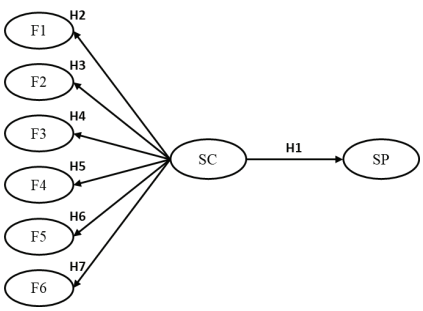

Figure 1: Structural model

Hypothesis 1. *safety culture has a significant impact on the safety performance on SME workers.*
Hypothesis 2. *F1 has significant impact on safety culture*
Hypothesis 3. *F2 has significant impact on safety culture*
Hypothesis 4. *F3 has significant impact on safety culture*
Hypothesis 5. *F4 has significant impact on safety culture*
Hypothesis 6. *F5 has significant impact on safety culture*
Hypothesis 7. *F6 has significant impact on safety culture*

Understanding the importance of the lower-order constructs (six safety factors) within the larger context of safety culture is critical for both researchers and policymakers. These six components, which contribute to the higher-order construct of safety culture, provide detailed insight about the specific areas that influence overall safety within an organisation. By analyzing how these factors collectively shape safety culture, we can better understand how safety culture, in turn, affects key outcomes, such as safety performance. The link between exogenous latent variables (safety culture) and endogenous latent variables (safety performance) is critical for making policy decisions. Exogenous variables are those that affect the system from the outside, whereas endogenous variables are the outputs dependable by these external impacts. In this context, understanding how a strong safety culture leads to greater safety performance assists policymakers to identify crucial areas that require attention.

These six factors serve as clear guidelines for policymakers, offering a concrete framework around which safety policies can be constructed. Rather than adopting a one-size-fits-all approach, policymakers can tailor safety regulations and initiatives that align with the realities of Malaysian SMEs and the feasibility of implementation. This targeted approach ensures that safety policies are not only comprehensive but also practical, making them easier for organizations to implement and adhere to. Moreover, by grounding policy development in the empirical relationship between safety culture and safety performance, policymakers can create regulations that not only enhance safety outcomes but also foster a culture of safety that is sustainable over the long term. This approach helps ensure that safety practices become ingrained in organizational behavior, leading to lasting improvements in workplace safety across SMEs in Malaysia.

IV. Conclusion

In conclusion, the significant impact of safety culture on safety performance is clearly established, particularly within the context of SMEs in Malaysia. Research [7] highlights six critical factors that are essential for cultivating a strong safety culture within organizations: leadership commitment, monitoring and reporting, attitude towards OSH improvement, education on OSH, and employee competencies. These factors work together to create an environment where safety is deeply embedded in daily operations, promoting proactive measures that prevent incidents and enhance employee well-being.

Moreover, visualizing the relationship between safety culture and safety performance through a structural model offers SMEs a clear framework for understanding how these elements interact and influence overall safety effectiveness. This model serves as a valuable tool for policymakers as well, helping them to develop safety regulations and initiatives that are specifically tailored to the unique needs and challenges of Malaysian SMEs. By aligning safety policies with the realities of these enterprises, policymakers can ensure that regulations are both practical and impactful, fostering a safer working environment across the country.

One limitation of this study is that the six safety factors examined are specifically tailored to the manufacturing industry. As a result, applying these findings to other sectors, may lead to inaccurate interpretations. The unique characteristics and safety challenges of these industries might not be adequately addressed by the current model. Therefore, further research is needed to explore and validate these safety factors across different industries, ensuring that the findings are applicable and relevant beyond the manufacturing sector.

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