

ORIGINAL ARTICLE

Title: Exploring Determinants of Safety Behavior in Malaysian SMEs Manufacturing Firms: An Extended Conceptual Model

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Abstract: Occupational accidents have resulted in numerous fatalities and injuries across industrialized and developing nations. Every year, millions of workers lose their lives and suffer from non-fatal injuries due to occupational accidents. Inadequate documentation and notification systems, particularly in developing countries, have resulted in ineffective measures to address occupational accidents, leading to the absence of globally recognized standards for addressing occupational accidents. Organizations still rely on baseline occupational safety measures statistics to enhance worker safety, despite the underreporting of accident data. This study aimed to develop an extended safety model to investigate the effects of safety behavior in small and medium enterprises (SMEs) manufacturing in Malaysia. Research priorities and questions on determinants of workplace safety behavior can be explored by utilizing the model, resulting in a more focused and efficient approach to improving workplace safety. This model serves as a valuable tool for informing policies and practices necessary to protect and enhance workplace safety and workers' well-being.

Keywords: Occupational Accidents, Safety behavior, SME Manufacturing.

1.0 INTRODUCTION

Small and medium-sized enterprises (SMEs) manufacturing firms are the engine that drives economic development in most developed and developing countries worldwide. This sector has become the lifeblood of Malaysia's financial system. In Malaysia, SME manufacturing businesses are defined as firms with less than 200 workers or sales revenues not exceeding RM50 million [1, 2].

The SMEs manufacturing firms' critical role in Malaysia's economic success has grown significantly since 2000, becoming one of the country's largest employment sectors and export contributors [3]. The SMEs manufacturing firms are a crucial component of Malaysia's economic landscape, comprising 98.5% of all business establishments, and play a pivotal role in job creation by employing almost 70% of the country's workforce [4].

Moreover, SME manufacturing firms are significant players in the global market, accounting for 17.3% of Malaysia's total exports [1]. Even though larger and more established businesses often

overshadow them, SME manufacturing firms remain vital to the local economy. They support big firms by serving as suppliers or distributors, and their innovations and adaptability help drive growth and development across various firms [3]. Therefore, it is no exaggeration to assert that manufacturing firms are the backbone of Malaysia's development and an essential driver of its economic stability.

Overall, the SMEs manufacturing firms in Malaysia are a fundamental component of the nation's economic landscape, contributing significantly to the country's GDP, employment rate, and international trade [2]. Their importance is further emphasized by their role in supporting larger established businesses, making them a crucial factor in the country's economic growth and stability.

Despite their importance, SMEs manufacturing firms often face unique challenges, including high numbers of occupational accidents [1, 3, 5]. As such, there is a need to focus on strategies to enhance the workplace safety of SMEs manufacturing firms, particularly in the face of global competitiveness. By strengthening the workplace safety of SMEs manufacturing firms, Malaysia can foster a more resilient and dynamic business ecosystem that will drive sustainable economic growth and development [1].

In today's fast-paced and highly competitive business environment, safety behavior has become crucial for firms striving to maintain a leading edge among their rivals [6]. Measuring safety behavior involves actions taken by workers to comply with safety rules and procedures, such as wearing personal protective equipment, following safe work practices, and reporting hazards or incidents that can significantly impact the firm's safety performance and overall reputation [1, 3, 4, 6]. However, despite the importance of safety behavior, SMEs manufacturing firms in Malaysia have been plagued by high rates of occupational accidents, making it one of the most dangerous firms to work in.

According to the Department of Occupational Safety and Health (DOSH) in Malaysia, SMEs manufacturing firms reported almost 85% of occupational accidents in 2022, accounting for 3632 non-permanently disabled, 156 permanently disabled occupational accidents, and 49 fatalities [7]. These alarming statistics from previous years have tarnished the firms' image and raised concerns among the stakeholders, including researchers who have been studying the root causes of this issue

for more than two decades. Therefore, SMEs manufacturing firms in Malaysia must prioritize safety behavior and implement effective measures to prevent occupational accidents and ensure the well-being of their workers.

This research proposes an extended safety model to investigate the determinants of safety behavior that contribute to fostering favorable workplace safety among workers in the Malaysian manufacturing SME sector. The study consists of a comprehensive literature review, a detailed description of the research methodology, data analysis techniques, and a discussion of the results. The paper culminates with overarching conclusions and recommendations based on the study's findings.

2.0 LITERATURE REVIEW

2.1 SAFETY BEHAVIOR

Safety behavior is a critical aspect of maintaining a safe work environment. It encompasses all individuals' actions to protect themselves and others from harm, including following safety regulations, adhering to guidelines, and engaging in safe practices [6]. Good safety behavior is essential for promoting better well-being in the workplace, as it reflects a worker's commitment to ensuring a safe work environment.

Safety behavior can be observed in the actions and attitudes of workers toward performing security exercises, such as wearing personal protective equipment (PPE), using safety equipment, and reporting hazards [1, 8]. Workers who exhibit good safety behavior are more likely to prevent accidents and injuries, thus promoting a safer work environment.

However, non-compliance with safety behaviors is a severe issue that can compromise workplace safety [3]. Workers who do not adhere to safety regulations and guidelines put themselves and others at risk of injury or harm. Therefore, it is essential to ensure that all workers understand the importance of proper safety behavior and follow the safety protocols to maintain a safe work environment.

Additionally, risky behavior is a concern in the workplace, referring to situations where workers intentionally or unintentionally engage in actions that pose a greater physical risk to

themselves or others [8]. Such behavior can result in accidents and injuries, which can have severe consequences for the individual and the workplace. Therefore, promoting good safety behavior and discouraging risky behavior in the workplace is crucial.

Researchers have debated whether occupational accidents and injuries are primarily related to dangerous job tasks performed by workers or risky working conditions [1, 3, 6, 8]. Evidence from the literature suggests that safe and unsafe behaviors are influenced by human and organizational factors, including safety attitudes, safety training, management practices, and safety knowledge, representing the shared moral beliefs, attitudes, and behaviors related to safety in a workplace.

2.2 SAFETY ATTITUDE

Attitudes are crucial in shaping an individual's workplace safety behavior [9]. Safety attitudes refer to an individual's tendency to react positively or negatively toward safety-related objects or situations [10]. The concept of safety attitude represents the workers' attitudes and perceptions regarding safety in the workplace [9, 10].

Effective safety management requires middle and upper management to take responsibility for shaping workers' attitudes toward safety. Although the concept of attitude may seem straightforward, it is not easy to define concisely. Sociologists view attitude as synonymous with habit, which refers to recurrent behavior that occurs automatically and without conscious awareness [11].

When workers adopt unsafe behaviors due to their attitudes, it can lead to an increased risk of workplace accidents, as their attitudes may differ from the safety perspective of the organization. Top management should ensure that employees have the necessary awareness and training related to their job responsibilities [11]. Studies have demonstrated that individuals' attitudes toward risk-taking can vary, highlighting the importance of developing strategies considering individual differences [10, 11]. Organizations can create a safer workplace and prevent accidents and injuries by promoting a positive safety climate and shaping employees' safety attitudes.

The role of individual attitudes in promoting or hindering safety compliance is a critical factor in workplace safety [12]. Workers engaging in unsafe behavior can have severe consequences for themselves, their colleagues, and the organization. Workers must adhere to the safety rules and

procedures to perform their jobs safely and be able to mitigate the risk of occupational accidents. An attitude of safety, in which workers are encouraged and empowered to prioritize safety in their work, can also help to reinforce the importance of safe behavior.

Moreover, workers' attitudes can vary based on various factors, including personal beliefs and experiences [11]. Some workers may be more willing to take risks than others, which can impact their behavior in the workplace. Therefore, understanding individual attitudes toward safety is critical to designing effective safety interventions. Therefore, organizations must take a comprehensive approach to promote safety, addressing individual attitudes and systemic factors impacting safety outcomes.

2.3 SAFETY TRAINING

Safety training plays a crucial role in ensuring the safety and well-being of employees in an organization. It involves teaching staff about hazards and using available defense methods to deal with potential dangers [1]. Safety training is not limited to apprising workers about known threats but also includes teaching them how to behave safely during work, thus reducing the risk of accidents.

Moreover, safety training ensures that employees perform their jobs correctly, promoting safety and increasing productivity [13]. Training involves repeating activities and instruction to obtain skills, knowledge, and awareness of rules, notions, or attitudes necessary to operate efficiently in specified job circumstances. It is also related to safety behavior because it educates workers on safe behavior, provides practice time, and motivates workers to perform their tasks safely [13].

Safety training is not a one-time event but is an ongoing process to keep employees updated on new safety protocols and practices [14]. Employees acquire new knowledge and skills through safety training, making them capable of handling their work safely. Safety training also provides a platform for employees to voice their concerns and contribute to the organization's safety culture [14].

Safety training is critical to ensuring a safe working environment for employees, reducing accidents, and improving productivity. Implementing effective safety training programs should be a priority for organizations, as it directly impacts the well-being of their employees and the organization's success.

2.4 SAFETY RULES AND PROCEDURES

Safety rules and procedures are critical to ensuring an organization's safe work environment. These guidelines provide a framework for employees to operate safely in their work environment, reducing the risk of accidents and injuries [15]. While some rules are specific to safety, others are related to quality, sustainability, health, output, and environmental control, among other things.

Safe work procedures outline the steps that must be taken to perform a job or activity safely and consistently [1]. These procedures identify potential hazards and risks and guide how to minimize them to ensure that the job is carried out safely. Safety policy, on the other hand, sets out the company's goals, responsibilities, and mission, establishing a safety scheme that defines the standards of behavior for employees to follow [1].

Safety rules are crucial in promoting safe behavior among employees, limiting the actions they can take while at work [3]. Failure to comply with these rules can result in serious workplace accidents. Hence, implementing safety policies and rules is crucial to developing safety compliance behavior in an organization. Moreover, safety rules and procedures are implemented to safeguard the employees, including control measures to avoid unwanted occurrences [1, 3]. Management's social control of written safety rules and procedures can modify employees' safety behavior, ensuring a safe work environment.

At the organizational level, procedures are related to formal instructions and policies, whereas, at the group level, they are detailed instructions that relate to specific workgroup functions [15]. At the individual level, they refer to procedures and work instructions related to the tasks of an individual. Therefore, safety policies, rules, and procedures are essential to educate employees about the work process flow, eliminate and control unsafe behavior in the workplace, and ensure a safe work environment.

2.5 SAFETY KNOWLEDGE

Safety knowledge is a critical aspect of promoting safety in the workplace. It refers to the theoretical or practical information and facts acquired through the learning process, which is necessary for workers to understand how to prevent and handle potential hazards [10]. Having

sufficient safety knowledge and skills are important determinants of safety behavior, and it can be developed through knowledge exchange, which involves the sharing and seeking of knowledge among employees [11]. This exchange of information plays a vital role in ensuring the effectiveness of risk communication between employers and employees.

Inadequate safety knowledge has been found to contribute to workplace accidents [10, 11]. To improve safety knowledge, the three pillars of safety management – safety rules and procedures, safety training, and safety communication and feedback – play a crucial role [1, 3, 12, 13, 14]. By transferring facts about the practices of carrying out their work in the safest way possible, employees are empowered to behave safely and prevent accidents from occurring.

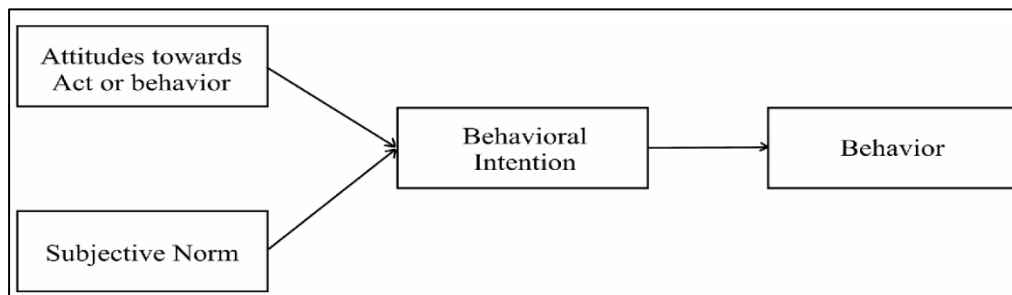
The manufacturing sector is one industry that has experienced a high number of accidents, primarily due to inadequate safety knowledge among workers [1, 11]. In many cases, workers were unaware of the rules and regulations. At the same time, some who were aware needed sufficient knowledge and training on specific instructions and procedures, leading to incorrect practices and disregard for safety rules [11].

Therefore, organizations must provide adequate safety training and education to their employees to equip them with the necessary knowledge and skills to operate safely [1, 10, 11]. Moreover, safety knowledge possessed by individuals should be communicated effectively to others in a form that can be understood, absorbed, and applied in the workplace [11]. Organizations can create a safer working environment, reduce accidents, and improve overall safety performance by prioritizing safety knowledge and promoting knowledge exchange.

3.0 EXTENDED CONCEPTUAL SAFETY MODEL

The conceptual model was expanded based on the insights of [16]), who proposed that human behavior is influenced by two critical factors of intention, namely, attitudes and subjective norms. The Theory of Reasoned Action (TRA), as depicted in Figure 2.1, was developed by Ajzen and Fishbein

(1975) to understand and predict human behavior based on an individual's attitudes and behavioral intentions.



(Source: Ajzen & Fishbein, 1975)

Figure 2.1 Theory of Reasoned Action (TRA)

According to TRA, an individual's decision to engage in a particular behavior is based on their expectations of its consequences [17]. Various factors influence these expectations, such as personal beliefs, attitudes, and subjective norms [17]. Each factor has a varying degree of influence on behavioral intention, and the weight attributed to each factor depends on the individual's situation. In addition, TRA emphasizes social pressure's role and social norms' importance in shaping an individual's behavioral intention. This theory suggests that individuals are likely to conform to the expectations of those around them, and their intentions to engage in a particular behavior are influenced by the norms and values of their social group [16, 17].

The initial objective of this study is to establish the key determinants (safety attitude, safety training, and safety rules and procedures) that influence the safety behavior of workers and their impact on the occurrence of occupational accidents. The study's second aim is to provide insights into the mediating effect of safety knowledge on the relationship between safety attitude, safety training, safety rules and procedures, and safety behavior.

This study represents a unique contribution to the literature on workers' safety behavior as it extends the theory of Reasoned Action (TRA) by integrating individual and organizational factors in a unidimensional framework. The novelty of this approach lies in its ability to capture the complex interplay between various factors that affect workers' safety behavior. By incorporating both individual (safety attitude and safety knowledge) and organizational factors (safety training and safety rules and procedures), this study provides a comprehensive understanding of how workers' attitudes and behavioral intentions towards safety are influenced by various factors such as personal

beliefs, workplace culture, and management practices. Integrating these factors into a unidimensional framework allows for a more nuanced analysis of the determinants of workers' safety behavior, which is crucial for developing effective safety interventions and improving occupational safety outcomes.

The second novelty of this study is the consideration of safety knowledge as a potential mediating factor in the relationship between safety attitude, safety training, safety rules and procedures, and workers' safety behavior. Safety knowledge is crucial in shaping workers' attitudes, perceptions, and intentions toward safety practices and procedures. In this study, safety knowledge is conceptualized as the theoretical or practical information and facts acquired through the learning process, which plays a critical role in increasing workers' awareness and creating a safe working environment. Overall, as demonstrated in Figure 2.2, the extended safety model significantly contributes to occupational safety by providing an advanced understanding of the factors influencing workers' safety behavior and insights into developing effective safety interventions.

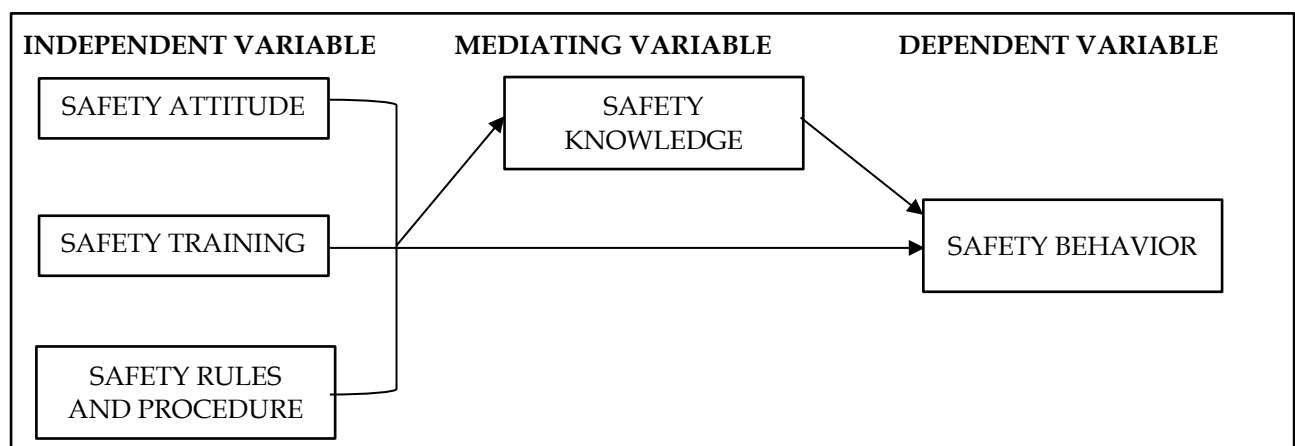


Figure 2.2 Conceptual extended safety model of safety behavior through safety knowledge and safety attitude, safety training, and safety rules and procedures

4.0 CONCLUSION

From the extensive literature review, this study intends to explore the influence of workers' safety attitudes, safety training, and safety rules and procedures, along with safety knowledge on safety behavior to reduce the occupational accident among SME manufacturing workers. The worker who portrays good safety behaviors is recommended to exhibit high safety knowledge resulting in

low occupational accidents. Therefore, this proposed extended safety model is needed to be examined for further understanding. The proposed extended safety model will be tested in a research program conducted by the first author in Malaysia. The result of the thorough research is expected to provide a further understanding of occupational accidents and aid the development of effective interventions in workplace safety.

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