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The Relationship Between the Occupational Health and Safety Management System and Safety Behaviors in the Workplace Among Operational-Level Employees in the Production Department of a Granite Product Manufacturing Company in Tak Province

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Abstract
This study investigates the relationship between the occupational health and safety management system (OHSMS) and safety behaviors among operational-level employees in the production department of a granite product manufacturing company located in Tak Province, Thailand. The research aimed to examine how personal factors age, education, and work experience and ten OHSMS dimensions influence employees' safety behavior in the workplace. A quantitative, cross-sectional survey design was employed, using a structured questionnaire developed from relevant theories and empirical literature. The population consisted of 363 employees aged 21–55 years, and a sample of 190 respondents was determined using Taro Yamane's formula. Data were analyzed using descriptive statistics, t-tests, oneway ANOVA, and multiple regression analysis. The results revealed that respondents exhibited a very high level of safety behavior (Mean = 4.778) and a high overall perception of OHSMS implementation (Mean = 4.182). The ANOVA results indicated that work experience significantly affected safety behavior ($p < .05$), while age did not. The multiple regression model was statistically significant ($F = 3.410$, $p < .001$; $R^2 = .160$), identifying four OHSMS dimensions policy, planning, communication, and operational control/documentation as significant predictors of safety behavior. Among these, policy, communication, and control/documentation had positive relationships with safety behavior, whereas planning demonstrated a negative association. The findings highlight that effective OHSMS implementation enhances workplace safety behaviors, particularly when policies are clearly communicated, procedures are well-documented, and safety planning is participative and flexible. The study underscores the importance of continuous communication, practical training, and supportive leadership in sustaining a proactive safety culture. Recommendations include reinforcing safety communication strategies, revising planning processes to reduce procedural rigidity, and providing targeted mentoring for less experienced employees.
Keywords: *Occupational Health and Safety, Safety Behaviors, Production Employees*

INTRODUCTION

Occupational health and safety (OHS) is a critical aspect of maintaining a productive and healthy workforce, particularly in industries characterized by hazardous working conditions. The importance of OHS systems is underscored by the significant risks that employees face in high-risk industries, such as manufacturing. In manufacturing environments, operational-level employees often work with heavy machinery, materials that may be hazardous to health, and in conditions that can lead to both short-term and long-term physical harm. These hazards are especially evident in the granite product manufacturing industry, where employees are exposed to dust, sharp objects, heavy lifting, and the operation of potentially dangerous machinery. In this context, the implementation of a comprehensive OHS management system is crucial to ensuring both the safety and well-being of employees, as well as the sustainability of the organization.

A well-established OHS management system is a framework of policies, procedures, and practices designed to minimize workplace risks and protect employees from injury or illness. These systems typically include elements such as risk assessment, safety training programs, health surveillance, emergency preparedness, and hazard identification. The effectiveness of an OHS management system is closely linked to employee compliance with safety protocols and their active engagement in safe behaviors, which is why understanding the relationship between these systems and safety behaviors is essential for

improving overall workplace safety. Safety behaviors, in turn, refer to the actions taken by employees to prevent accidents and injuries, including adherence to safety procedures, the use of personal protective equipment (PPE), and the reporting of hazards. A safety behavior-driven work culture is a key determinant of organizational safety outcomes, influencing both accident rates and employees' perceptions of risk (Zohar, 2010).

In manufacturing industries, particularly in high-risk settings like granite product production, the hazards employees face are diverse. Granite dust, for example, is a well-documented respiratory hazard that can cause long-term health problems if proper ventilation and PPE are not used. Workers in the production department of granite manufacturing companies are also exposed to musculoskeletal injuries from heavy lifting, repetitive tasks, and awkward postures. The operation of large, heavy machinery and equipment also introduces the risk of accidents and injuries. To mitigate these risks, it is essential for companies to implement effective OHS management systems that not only protect workers but also encourage a safetyconscious culture. However, the mere existence of such a system does not guarantee that employees will consistently follow safety protocols. There is often a gap between the policies established by the OHS management system and the actual safety behaviors demonstrated by employees (Clarke, 2006).

This research aims to explore the relationship between the OHS management system and safety behaviors in the workplace among operational-level employees in the production department of a granite product manufacturing company in Tak Province, Thailand. Specifically, this study seeks to understand how the structure and effectiveness of the OHS management system influence the safety behaviors of these employees. Given that operational-level employees are directly engaged with the production processes, their safety behaviors have a significant impact on overall workplace safety and health. Additionally, the research will examine how individual characteristics such as age, education level, and work experience affect these safety behaviors.

The relationship between OHS management systems and safety behaviors has been the subject of numerous studies, with evidence suggesting that a well-implemented OHS system is likely to promote positive safety behaviors among employees. Safety climate, for instance, is often cited as a key factor in influencing employees' safety behaviors. A positive safety climate where safety is seen as a priority and is consistently supported by both management and employees can enhance safety performance by motivating employees to engage in safe practices (Zohar, 2003). However, employees' safety behaviors are also influenced by various individual factors, including their personal attitudes toward safety, their experience with workplace hazards, and their level of education or training in safety practices (Clarke, 2006).

While previous research has identified key factors that influence safety behaviors, the specific context of granite manufacturing presents unique challenges. Granite production requires specialized knowledge of the risks associated with the materials and machinery used, and this knowledge is not always uniformly distributed among employees. Therefore, factors such as work experience, which may provide employees with a better understanding of these risks, are expected to play a significant role in shaping safety behaviors. Similarly, the level of education may affect how well employees understand and adhere to safety protocols. Employees with higher levels of education may have a greater capacity to comprehend the importance of safety regulations and are more likely to engage in safety-compliant behavior. In contrast, younger employees with less experience may be more prone to taking risks or disregarding safety measures.

In the context of Tak Province, Thailand, this research will provide valuable insights into how OHS management systems can be tailored to address the unique needs of granite product manufacturing companies. By understanding the relationship between the OHS system and safety behaviors, this study aims to identify strategies for improving safety outcomes and reducing workplace accidents. Moreover, by considering the role of individual characteristics, the research will contribute to the development of more personalized and effective safety training programs, which could ultimately lead to a safer and more productive workforce.

This study will focus on two primary objectives. First, it will investigate how the OHS management system influences the safety behaviors of operational-level employees in the production department. This analysis will provide insight into whether a strong, well-implemented OHS system correlates with higher levels of safety compliance and fewer workplace accidents. Second, the study will examine how individual characteristics such as age, education level, and work experience relate to safety behaviors in this particular setting. By exploring these factors, the research aims to identify key predictors of safe behavior that can inform future safety interventions and training programs.

In conclusion, this research will provide an in-depth analysis of the relationship between the OHS management system and safety behaviors in the workplace among operational-level employees in the granite product manufacturing sector. It will also examine how individual characteristics influence safety behaviors, offering insights that could lead to more effective safety practices and better health outcomes for employees in high-risk manufacturing environments.

Research Objectives

1. To investigate the relationship between the OHS management system and safety behaviors in the workplace among operational-level employees in the production department of a granite product manufacturing company in Tak Province.
2. To explore how individual characteristics such as age, education level, and work experience influence the safety behaviors of operational-level employees in the production department of a granite product manufacturing company in Tak Province.

Research Hypotheses

1. Individual factors, including age, experience, and education level, affect the safety behaviors of operational-level employees in the production department of a granite product manufacturing company in Tak Province.
2. The occupational health and safety management system's various components influence the safety behaviors of operational-level employees in the production department of a granite product manufacturing company in Tak Province.

LITERATURE REVIEWS

This literature review examines the relationship between occupational health and safety (OHS) management systems and safety behaviors in the workplace, with a focus on operational-level employees in the production department of a granite product manufacturing company in Tak Province, Thailand. The review integrates theoretical concepts and empirical studies from various domains, including demographic factors, safety management, OHS management systems (specifically OHSAS 18001), and safety behavior theories.

1. Demographic Factors and Safety Behavior. Demographic factors, such as age, experience, and education level, play an important role in influencing safety behaviors in the workplace. Several studies have explored how these factors shape workers' attitudes toward safety and their compliance with safety regulations. Age and experience, in particular, are widely recognized as key determinants of safety behaviors. Older employees, with more years of experience, often exhibit higher levels of caution and awareness of workplace hazards, leading to safer behavior. Research by Hofmann and Stetzer (1996) suggests that employees with more experience are better at recognizing potential hazards and are more likely to engage in proactive safety behaviors. On the other hand, younger employees may be more prone to risky behaviors due to their lack of experience or understanding of the potential consequences of unsafe actions (Clarke, 2006). Additionally, education level has been identified as a factor influencing safety behavior. Employees with higher levels of education tend to have a better understanding of safety protocols and are more likely to comply with safety measures (Geller, 2001). Therefore, understanding the demographic characteristics of employees is crucial when designing targeted safety interventions and training programs that can enhance safety behavior.

2. Safety Management in Organizations. Safety management is an essential aspect of ensuring a safe working environment, especially in high-risk industries such as manufacturing. Effective safety management systems (SMS) are designed to reduce the likelihood of accidents, injuries, and health issues by identifying, assessing, and controlling risks. The implementation of a comprehensive safety management system requires a commitment from both organizational leadership and employees. Zohar (2003) emphasized that a strong safety climate within an organization positively influences employees' safety behaviors. This climate is fostered through clear safety policies, consistent enforcement of safety protocols, and active employee participation in safety activities. Safety management involves not only the creation of policies but also the communication and reinforcement of these policies throughout the organization. Effective communication of safety guidelines, regular safety training, and continuous feedback are essential components of an organizational safety management system. According to Kines et al. (2010), organizations that implement a culture of safety through regular safety audits, hazard identification programs, and employee involvement tend to experience lower accident rates and better

overall safety outcomes. Safety management also requires ongoing evaluation and adaptation to address new and emerging risks in the workplace, as the dynamics of the work environment evolve over time.

3. Occupational Health and Safety Management Systems (OHSAS 18001). The OHSAS 18001 standard, now superseded by ISO 45001, provides a framework for organizations to develop an effective OHS management system. This international standard emphasizes risk-based approaches to managing workplace health and safety and outlines requirements for establishing, implementing, operating, monitoring, reviewing, and improving OHS management systems. The adoption of OHSAS 18001 helps organizations identify workplace hazards, assess risks, and establish control measures to prevent accidents and injuries (International Organization for Standardization [ISO], 2018). An OHSAS 18001-compliant system integrates various components such as policy development, risk assessment, hazard control, training, and continuous improvement. The standard encourages organizations to actively involve employees in safety activities and to maintain regular monitoring and evaluation to ensure the effectiveness of safety programs. Research has shown that companies that adopt OHSAS 18001 standards see improvements in their safety performance, including reductions in workplace accidents and enhanced employee well-being (Evanoff et al., 2003). For operational-level employees in manufacturing settings, the implementation of an OHSAS 18001 system provides a structured approach to managing safety risks. It helps establish clear roles and responsibilities, integrates safety into organizational processes, and promotes a culture of continuous improvement in workplace safety. In the context of granite product manufacturing, where workers face unique risks such as exposure to dust, heavy machinery, and manual handling, compliance with OHSAS 18001 can significantly reduce accidents and injuries.

4. Requirements of OHS Management Systems: OHSAS 18000 Standards. The OHSAS 18000 series of standards, including OHSAS 18001, specifies the requirements for an effective occupational health and safety management system. These standards emphasize the need for a systematic approach to managing health and safety risks through continuous assessment, training, and employee involvement. Key components of the OHSAS 18001 standard include: Policy and Commitment: Organizations are required to establish and communicate a safety policy that demonstrates top management's commitment to ensuring employee safety and health. Risk Assessment and Control: A key feature of the OHSAS 18001 standard is the requirement for regular risk assessments to identify potential hazards and establish control measures to mitigate these risks. Employee Involvement: The standard stresses the importance of involving employees in the development and implementation of safety procedures, fostering a sense of ownership and responsibility for safety outcomes. Monitoring and Continuous Improvement: Regular monitoring, auditing, and review processes are essential to ensure that safety systems remain effective and adapt to emerging risks. The OHSAS 18001 framework aligns safety with organizational goals, ensuring that safety is treated as a strategic priority. In the context of Tak Province's granite manufacturing industry, adherence to OHSAS 18001 can lead to better management of physical, chemical, and ergonomic hazards, enhancing the overall safety culture in the workplace.

5. Theories and Concepts of Safety Behavior in the Workplace. Safety behavior in the workplace refers to the actions taken by employees to prevent accidents and injuries. It encompasses both safe behaviors, such as wearing protective equipment and following safety procedures, and unsafe behaviors, such as ignoring safety protocols or taking shortcuts to complete tasks more quickly. Various theories have been proposed to explain the factors that influence safety behavior in the workplace. One well-known theory is the Theory of Planned Behavior (Ajzen, 1991), which suggests that individual behaviors are influenced by intentions, attitudes, subjective norms, and perceived behavioral control. In the context of workplace safety, employees are more likely to engage in safe behaviors if they have positive attitudes toward safety, perceive safety protocols as necessary, and feel that they have control over their actions. Another influential theory is the Behavior-Based Safety (BBS) Model, which focuses on identifying and modifying unsafe behaviors by providing feedback, rewards, and safety training (Geller, 2001). According to the BBS model, positive reinforcement of safe behaviors and clear communication of safety expectations help reduce unsafe practices and improve overall safety performance.

In addition to these theories, research has highlighted the role of organizational culture and leadership in shaping safety behaviors. A strong safety culture, in which safety is prioritized at all levels of the organization, has been shown to positively influence employee safety behaviors (Zohar, 2003). Leadership plays a crucial role in setting the tone for safety by consistently modeling safe behaviors, providing resources for safety programs, and reinforcing the importance of safety throughout the organization. This literature review highlights the importance of OHS management systems, specifically OHSAS 18001, in influencing the safety behaviors of employees in high-risk industries like granite manufacturing. It also

underscores the role of demographic factors, safety management practices, and safety behavior theories in shaping workplace safety. By integrating these insights, the present study aims to explore the relationships between the OHS management system and safety behaviors among operational employees in Tak Province's granite product manufacturing sector. Understanding these relationships will contribute to developing more effective safety management strategies, improving workplace safety outcomes, and promoting employee well-being.

Conceptual Framework. This study aims to examine the influence of personal factors and the occupational health and safety management system (OHSMS) on the safety behavior of operational-level employees in the production department of a granite manufacturing company located in Tak Province, Thailand. Independent Variables, (1) Personal Factors: Age, Educational Level, Work Experience (2) Occupational Health and Safety Management System (OHSMS): Policy, Planning, Resources and Responsibilities, Employee Development, Communication, Participation, Operational Control and Documentation, Emergency Preparedness, Inspection and Monitoring, Management Review. Dependent Variable, Safety Behavior of Operational Employees. The framework illustrates that personal factors and the OHSMS components jointly influence employees' safety behavior. Personal characteristics such as age, education, and work experience may shape an individual's perception of workplace safety and their adherence to safe work practices. Simultaneously, the implementation and effectiveness of OHSMS including clear policies, communication, training, and managerial support create an organizational environment that reinforces or discourages safety behaviors. In summary, both individual attributes and organizational systems interact to determine the level of safety behavior among production employees.

RESEARCH METHODOLOGY

Research Design. This study employed a quantitative, cross-sectional survey research design to investigate the relationship between the occupational health and safety management system (OHSMS) and safety behaviors among operational-level employees in the production department of a granite product manufacturing company located in Tak Province, Thailand. The design was selected because it allows for systematic data collection and statistical analysis to identify correlations and causal inferences between independent and dependent variables (Creswell & Creswell, 2018).

Population and Sample. The study population consisted of all 363 operational-level employees aged 21–55 years working in the production department of the granite manufacturing company as of April 17, 2024. Given the known population size, the sample size was calculated using Taro Yamane's formula with a 95% confidence level and a 5% margin of error, resulting in a required sample of 190 participants (Yamane, 1973). A two-step sampling strategy was applied. In the first step, proportional stratified sampling was used to ensure that respondents were distributed across different production units in proportion to their representation in the overall workforce. In the second step, convenience sampling was employed, whereby questionnaires were administered only to employees who provided consent and were available during the data collection period. This approach was deemed appropriate given the practical constraints of workplace research and the need to ensure voluntary participation (Etikan, Musa, & Alkassim, 2016).

Research Instrument. The primary data collection tool was a structured questionnaire developed by the researcher, guided by the conceptual framework, prior empirical studies, and relevant theoretical perspectives. The instrument was divided into three sections: Personal Information, This section contained three multiple-choice questions on demographic characteristics: age (ordinal scale), highest educational attainment (nominal scale), and work experience in years (ordinal scale). Occupational Health and Safety Management System (OHSMS) – This section consisted of 48 items measuring perceptions of OHSMS implementation across ten dimensions: policy, planning, resources and responsibilities, employee development, communication, participation, operational control and documentation, emergency preparedness, inspection and monitoring, and management review. Responses were scored on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Mean scores were interpreted as follows: 4.21–5.00 = very high level; 3.41–4.20 = high level; 2.61–3.40 = moderate level; 1.81–2.60 = low level; and 1.00–1.80 = very low level. Safety Behaviors – This section included 15 items assessing the frequency of safety-related behaviors. A five-point Likert scale was used, ranging from 1 (never) to 5 (always). Interpretation followed the same ranges as the OHSMS section, with higher scores indicating greater adherence to safety practices.

Instrument Validation and Reliability. To ensure content validity, the questionnaire was reviewed by three subject-matter experts in occupational safety and research methodology. Each item was evaluated

for relevance and clarity using the index of item-objective congruence (IOC), with acceptable items required to achieve a score of 0.50 or higher (Rovinelli & Hambleton, 1977). The revised instrument was pilot-tested with 30 employees from comparable companies. Cronbach's alpha coefficients exceeded 0.916 across all scales, indicating strong internal consistency and reliability (Hair, Black, Babin, Anderson, & Tatham, 2006). Ethical approval was obtained from an institutional review board prior to data collection. Informed consent was secured from all participants, and confidentiality was maintained throughout the study.

Data Collection Procedures. Data were collected through self-administered questionnaires distributed by the researcher. The purpose of the study and instructions for completing the survey were explained to respondents prior to participation. Completed questionnaires were retrieved immediately to minimize loss of data and ensure the target sample size of 190 was achieved.

Data Analysis. Data were analyzed using both descriptive and inferential statistical techniques with SPSS software. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize demographic data, OHSMS perceptions, and safety behavior levels.

Inferential analyses were conducted to test research hypotheses. Independent t-tests were used to examine differences in safety behaviors between two demographic subgroups. One-way analysis of variance (ANOVA) was employed to compare mean differences among more than two groups, with Fisher's Least Significant Difference (LSD) post-hoc tests applied when significant differences were detected. Finally, multiple regression analysis was conducted to determine the predictive power of personal factors and OHSMS dimensions on safety behaviors. The regression model allowed for simultaneous examination of multiple independent variables, thereby identifying the most influential predictors of workplace safety behavior. Through these methods, the study provides empirical evidence regarding the role of both individual characteristics and organizational systems in shaping safe work practices among employees.

RESEARCH RESULTS

Sample Characteristics. Data were analyzed from 190 operational-level employees in the production department. With respect to age, 35.8% were 21–30 years (n = 68), a majority 54.7% were 31–40 years (n = 104), 8.4% were 41–50 years (n = 16), and 1.1% were 51–55 years (n = 2). The education variable was excluded from inferential testing because counts above the bachelor's level were zero and only nine respondents held a bachelor's degree, rendering the distribution highly unbalanced for formal hypothesis tests. Regarding work experience, half of the respondents (50.0%) reported 6–10 years (n = 95), followed by 1–5 years (25.3%, n = 48) and ≥11 years (24.7%, n = 47).

Perceptions of the OHSMS. Perceived implementation of the occupational health and safety management system (OHSMS) was high overall (Mean = 4.182 on a 5-point scale). At the dimensional level, Policy averaged 4.229 (very high). Items with the strongest endorsement concerned the existence of a formal policy and efforts to raise safety awareness among employees (item means ≈ 4.347–4.236). Regular policy review and alignment with regulations were rated high (≈ 4.200–4.110). Planning showed the highest average (M = 4.245, very high), with consistently strong ratings for ongoing hazard identification and risk assessment, clearly specified risk controls and safety objectives, alignment of plans with production areas, and explicit differentiation of high- versus low-risk activities (item means ≈ 4.294–4.210). Resources and Responsibilities were rated high (Mean = 4.114), with emphasis on documented roles, confidence in the system, role delineation, and provision of necessary resources (≈ 4.152–4.078). Employee Development was high (Mean = 4.160), including training on OHSMS, risk-related safety awareness, post-training knowledge checks, and record-keeping of training feedback (≈ 4.173–4.152). Communication was high (Mean = 4.177), highlighting channels for upward communication from operators, cross-unit communication, and communication with contractors and visitors (≈ 4.205–4.157). Participation was high (Mean = 4.205), particularly for employee involvement in hazard identification and risk assessment and for stakeholder participation in policy review (≈ 4.236–4.173). Operational Control & Documentation was high (Mean = 4.131), including control of procedures aligned to policy and objectives, management of activities linked to identified hazards, adherence to performance criteria, and comprehensive written procedures (≈ 4.184–4.105). Emergency Preparedness was high (Mean = 4.206), with strong endorsement of documented emergency procedures, periodic drills, and routine review and updates (≈ 4.210–4.200). Inspection & Monitoring was high (Mean = 4.152), covering monitoring of policy attainment, documentation of monitoring data, performance measurement, and scheduled follow-up (≈ 4.184–4.126). Management Review was high (Mean = 4.165), emphasizing regular reviews, follow-up on prior actions, and implementing improvements based on the reviews (≈ 4.205–4.110). Taken

together, respondents perceived an OHSMS that is broadly established and functioning at a high level across all ten domains. Safety Behaviors was rated very high overall (Mean = 4.778). Every item achieved a "very high" level. The highest means were observed for storing sharp/dangerous tools safely after use (Mean = 4.957), reporting defective tools immediately (Mean = 4.936), and consistently wearing personal protective equipment (PPE) (Mean = 4.931). Additional high-frequency behaviors included prioritizing safe methods before starting work and wearing appropriate attire/PPE (both Mean ≈ 4.910), complying with warning signs (Mean = 4.900), and following work procedures even if it slows completion (Mean = 4.868). Other behaviors reporting injuries promptly (Mean = 4.847), adequate rest (Mean = 4.742), strict compliance with safety rules (Mean = 4.826), avoiding risky conditions (Mean = 4.721), not horse playing (Mean = 4.678), not using damaged tools (Mean = 4.663), and ensuring physical/mental readiness (Mean = 4.552) were also very high. The comparatively lowest mean was for stopping work when feeling unwell (M = 4.236), although it remained within the "very high" band.

Hypothesis Testing: Group Differences. Prior to one-way ANOVAs, Levene's tests indicated unequal variances for age and experience ($p = .010$ and $p < .001$). Consequently, Brown–Forsythe tests were used. Age: No significant differences in safety behavior were found across age groups ($p = .658$). Work Experience: Differences were significant ($p = .014$). Dunnett's T3 post hoc comparisons showed that employees with 1–5 years of experience scored lower than those with 6–10 years ($p = .029$; mean difference = –0.203). No other pairwise contrasts reached significance at $\alpha = .05$.

Multiple Regression: OHSMS Predictors of Safety Behavior. A multiple regression model (Enter method) examined the ten OHSMS dimensions as predictors of safety behavior. The model was significant ($F = 3.410$, $p < .001$), with $R^2 = .160$ and Adjusted $R^2 = .113$ (SE = 0.34209; multiple r = .400). Four dimensions were significant predictors:

Planning (X2): B = –0.414, $\beta = -0.495$, $p = .001$

Policy (X1): B = 0.211, $\beta = 0.267$, $p = .043$

Communication (X5): B = 0.194, $\beta = 0.265$, $p = .027$

Operational Control & Documentation (X7): B = 0.184, $\beta = 0.236$, $p = .038$

The remaining dimensions Resources & Responsibilities (X3), Employee Development (X4), Participation (X6), Emergency Preparedness (X8), Inspection & Monitoring (X9), and Management Review (X10) were not significant (ps > .05). Overall, these results indicate that, while the OHSMS is perceived as robust across domains, policy clarity, effective communication, and procedural control/documentation are positive correlates of safety behavior, whereas higher scores on planning were associated with lower reported safety behavior in this sample. The model explains 16% of the variance in safety behavior. As shown in Table 1.

Table 1: Multiple Regression Analysis of Occupational Health and Safety Management System (OHSMS) Dimensions Predicting Safety Behavior among Operational-Level Employees (n = 190)

Predictor Variables	**Unstandardized Coefficients (B)**	**Std. Error (SE)**	**Standardized Coefficients (β)**	**t**	**p**
Constant	3.915	0.302	—	12.959	.000***
Policy (X_1)	0.211	0.103	0.267	2.038	.043*
Planning (X_2)	–0.414	0.125	–0.495	–3.299	.001**
Resources and Responsibilities (X_3)	0.111	0.091	0.133	1.219	.225
Employee Development (X_4)	–0.097	0.086	–0.126	–1.135	.258
Communication (X_5)	0.194	0.087	0.265	2.227	.027*
Participation (X_6)	–0.009	0.081	–0.011	–0.115	.909
Operational Control and Documentation (X_7)	0.184	0.088	0.236	2.090	.038*

Emergency Preparedness (X_8)	0.000	0.095	0.000	–0.002	.999
Inspection and Monitoring (X_9)	0.131	0.094	0.157	1.394	.165
Predictor Variables	**Unstandardized Coefficients (B)**	**Std. Error (SE)**	**Standardized Coefficients (β)**	**t**	**p**
Management Review (X_{10})	–0.095	0.091	–0.126	–1.052	.294

Model Summary:
R = .400 R^2 = .160 Adjusted R^2 = .113 F(10, 179) = 3.410 p < .001
SE = 0.34209

Note. Dependent variable: Safety Behavior. p < .05*, p < .01** (), p < .001***.

DISCUSSION & CONCLUSION

The findings of this study revealed a significant relationship between the implementation of the occupational health and safety management system (OHSMS) and safety behaviors among operationallevel employees in a granite product manufacturing company in Tak Province. Overall, employees demonstrated a very high level of safety behavior (Mean = 4.778), while perceptions of OHSMS implementation were high across all ten dimensions (Mean = 4.182). These findings indicate that a robust OHSMS contributes positively to fostering safe work practices, consistent with prior research emphasizing the importance of organizational systems in promoting occupational safety (Clarke, 2013; FernándezMuñiz, Montes-Peón, & Vázquez-Ordás, 2012).

Among the ten OHSMS dimensions, four policy, planning, communication, and operational control and documentation were significant predictors of safety behavior. Specifically, policy exhibited a positive association, highlighting that clear, well-communicated safety policies endorsed by management help shape employees' safety attitudes and behaviors. This aligns with Vinodkumar and Bhasi's (2010) findings that visible managerial commitment and well-defined safety policies enhance compliance and selfregulatory safety practices among workers.

Interestingly, the planning dimension showed a significant negative relationship with safety behavior. One possible explanation is that overly formalized or bureaucratic planning processes may inadvertently reduce employees' sense of autonomy or create procedural fatigue, diminishing active engagement in safety practices. In other words, employees may perceive safety planning as a management-driven administrative task rather than a participatory effort, which could undermine intrinsic motivation for safe behavior (Zohar, 2011). This finding suggests that while planning is crucial, its effectiveness depends on employee involvement and adaptability to real operational conditions.

The communication dimension emerged as a strong positive predictor, indicating that open, multidirectional safety communication is central to cultivating a proactive safety culture. When employees feel empowered to voice concerns, share hazard information, and receive timely feedback, their safety awareness and compliance tend to increase (Mullen, Kelloway, & Teed, 2017). Similarly, operational control and documentation significantly predicted safety behavior, implying that standardized operating procedures and clear documentation reduce uncertainty, ensure consistency, and help reinforce safe performance, as observed in studies by De Koster, Stam, and Balk (2011).

In contrast, six dimensions—resources and responsibilities, employee development, participation, emergency preparedness, inspection and monitoring, and management review did not significantly predict safety behavior in this model. This may be due to the organization's already mature safety system, where such practices are institutionalized and no longer show variation sufficient to predict differences in safety behavior. Alternatively, employees may perceive these areas as management responsibilities rather than as directly influencing their daily safety practices.

Demographic analysis revealed that work experience, but not age, significantly affected safety behavior. Employees with 6–10 years of experience exhibited higher safety compliance than those with 1–5 years of experience. This finding aligns with studies suggesting that accumulated experience enhances hazard recognition and situational awareness (Gyekye, 2010). Younger or less experienced employees may require additional training, mentoring, and reinforcement to internalize safe behaviors effectively.

This study provides empirical evidence that the effectiveness of occupational health and safety management systems is strongly linked to employees' safety behavior in industrial settings. The findings emphasize the importance of integrating clear safety policies, effective communication mechanisms, and consistent operational control into safety management frameworks. While planning remains essential, it should be implemented flexibly and inclusively to encourage ownership and engagement from frontline workers.

Management should therefore prioritize policy clarity, participative communication, and practical control systems that translate safety plans into consistent actions on the shop floor. Furthermore, targeted interventions to support employees with less work experience such as mentoring programs and skill-based safety training—can strengthen organizational safety performance.

In conclusion, cultivating a sustainable safety culture requires not only procedural compliance but also social and psychological engagement at all levels of the organization. By aligning strategic OHSMS implementation with employee empowerment and feedback, organizations in high-risk manufacturing sectors can significantly enhance both individual safety behavior and overall operational resilience. Future research could extend this study by comparing multiple industrial sites or employing longitudinal designs to assess how OHSMS maturity evolves and influences safety outcomes over time.

Recommendations 1. Practical Recommendations

Based on the study findings, management of the granite manufacturing company should strengthen occupational health and safety practices by emphasizing policy clarity, effective communication, and procedural control. Safety policies should be consistently communicated through multiple channels and reinforced by visible managerial commitment to cultivate a positive safety climate. Regular feedback sessions and cross-level discussions can ensure that safety planning remains practical and employeecentered rather than bureaucratic.

Additionally, the company should enhance training and mentoring programs for employees with limited work experience, as this group demonstrated comparatively lower safety behavior scores. Mentorship by experienced workers and scenario-based safety drills could increase awareness and improve behavioral consistency. Finally, periodic review and streamlining of safety procedures can help reduce redundancy in planning processes while maintaining compliance and operational control.

2. Recommendations for Future Research

Future studies should replicate this research across different industrial sectors and geographic regions to test the generalizability of the findings. A longitudinal design could provide insight into how OHSMS maturity influences safety behaviors over time. Moreover, integrating qualitative methods such as interviews or focus groups would deepen understanding of employees' perceptions of safety management practices, communication barriers, and cultural factors shaping safety behavior. Such extensions would enhance theoretical development and practical application in occupational health and safety research.

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