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INVESTIGATING SAFETY MANAGEMENT PRACTICES, PERFORMANCE AND TURNOVER INTENTIONS IN VIETNAMESE MIGRANT WORKERS

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ABSTRACT

Vietnamese migrant workers are currently one of the largest groups of migrant workers in Taiwan. As the number of Vietnamese migrant workers increases, the safety problems they face are becoming more obviously. According to statistics, Vietnamese migrant workers account for 50.87% of the total occupational accidents among foreign migrant workers. This study aims to examine how Vietnamese migrant workers perceive various factors by investigating the connections between safety management practices, safety performance, and turnover intentions. The goal is to address safety concerns more effectively. To gather data, a questionnaire survey method was utilized. Out of 450 distributed questionnaires, 413 valid responses were received. Through quantitative analysis, the study revealed that enhancing safety management practices and performance significantly reduces the likelihood of turnover among Vietnamese migrant workers. Notably, reinforcing safety promotion policies yields particularly strong effects. To further improve safety management, this study suggests that companies establish a reward system to motivate employees to report and address safety issues. Furthermore, the managers of the company should make specific improvements to safety matters reported by employees.

Keywords: *Safety management practices,Safety performance, Turnover intention, Vietnamese migrant workers*

1. INTRODUCTION

Taiwan relies on manufacturing as its main economic pillar. In 1989, the government began to introduce foreign migrant workers from Southeast Asia to fill the manpower gap in industry and manufacturing. As of the end of April 2023, the total number of foreign migrant workers introduced to Taiwan was 734,434, of which industrial migrant workers accounted for 69.31% (509,050 people), social welfare migrant workers accounted for 30.69% (225,384 people), and Vietnam migrant workers accounted for the highest proportion, accounting for 34.94 % (256,576 people). The introduction of foreign migrant workers aims to meet the needs of Taiwan's labor market and support the operations of various industries. However, foreign migrant workers face multiple labor rights issues at work, especially insufficient safety management practices and safety performance, which increases work risks. Cheng and Wu [1] discovered that migrant workers often face a higher risk of accidents due to inadequate safety and health training, as well as employers' negligence regarding safe work practices.

Key factors contributing to this issue include the use of improper protective gear, a lack of awareness about hazards, and poor equipment design. Specifically, when safety and health management is lacking, temporary foreign workers in the construction sector and machinery operators in manufacturing are particularly susceptible to accidents caused by falling objects or entrapment. Jazayeri and Dadi [2] highlighted that safety management practices significantly influence employees' safety performance; effective safety management can

enhance workers' safety awareness and lower the likelihood of workplace accidents and injuries. Building on this, the current study focuses on Vietnamese migrant workers in Tainan to investigate the relationships among safety management practices, safety performance, and turnover intentions.

Safety Management Practices (SMP)

Zohar and Luria [3] defined safety management practices (SMP) as the strategies and actions that organizations employ to avert workplace accidents and injuries. These can encompass establishing safety policies, providing training, setting safety standards, and creating communication and feedback systems. Vinodkumar and Bhasi [4] noted that such practices help organizations minimize the risk of accidents, injuries, and near misses. According to Ladewski and Al-Bayati [5], SMPs are essential for managing an organization's occupational health and safety performance. Fruhen et al. [6] emphasized that a management commitment to safety is crucial for supporting employees and motivating adherence to safety protocols. Vinodkumar and Bhasi [4] identified six key elements of SMP: Management Commitment (MC), Safety Training (ST), Worker Involvement in Safety (WIS), Safety Communication and Feedback (SCF), Safety Rules and Procedures (SRP), and Safety Promotion Policies (SPP).

To enhance safety and increase employee engagement, Wachter and Yorio [7] proposed a framework that includes Safety Communication, Safety Training, Safety Engagement, Safety Leadership, Safety Incentives, and Safety Inspections. Their findings indicate that SMP significantly impact safety performance elements, such as compliance and participation, with safety knowledge and motivation serving as mediators. Therefore, boosting employees' safety knowledge and motivation, alongside effective safety management practices, can improve safety behaviors. Wachter and Yorio [7] also highlighted that fostering employee involvement and implementing safety management practices can lead to a reduction in accidents, stressing the importance of safety protocols, incident investigations, risk assessments, and active participation in safety initiatives to cultivate a safety-focused organizational culture.

Safety Performance(SP)

Research on safety performance (SP) in Taiwan is a significant area of study, with many scholars focused on assessing organizations' effectiveness in safety management and implementation. Sawacha et al. [8] identified seven different categories of factors that can impact safety performance at construction sites: historical, economic, psychological, technical, procedural, organizational, and environmental. Griffin and Neal [9] defined safety performance as the individual behaviors related to organizational safety, establishing a connection to relevant psychological factors, which enables a systematic evaluation of safety performance. They differentiate between safety compliance (SC) and safety participation (SP) as two distinct facets of safety performance, influenced by various knowledge, skills, and motivations. Safety compliance refers to employees adhering to safety procedures and working safely, while safety participation is linked to safety knowledge and motivation.

Griffin and Neal [9] established that these two components of safety performance are independent. Vinodkumar and Bhasi [4] also highlight that safety performance includes both adherence to safety regulations and active participation. Individual perceptions of safety knowledge and motivation significantly affect reported safety performance and moderate the relationship between safety climate and performance. Their study, which involved performance ratings from 550 colleagues, revealed a four-factor model of general safety

performance: using personal protective equipment, implementing risk reduction measures, communicating health and safety information, and exercising employee rights and responsibilities. These factors play a crucial role in enhancing safety performance [10]. Naji et al. [11] conducted a study with 380 production employees in Malaysia's upstream oil and gas sector, confirming that all hypotheses were significant. Their findings indicated that safety culture directly and indirectly influences safety performance through psychosocial hazards, which serve as a mediating factor. This underscores the necessity of addressing psychosocial aspects in the workplace to improve safety performance, particularly in the oil and gas industry.

Turnover Intention (TI)

Belete [12] defines employee turnover intention (TI) as the likelihood that employees will leave their current positions. Organizations of all sizes and types consistently prioritize understanding employee turnover intentions. Wubetie et al. [13] describe turnover intention as employees' perceived probability of permanently departing from their job or organization in the near future due to various influences. Hongvichit [14] characterizes turnover intention as a psychological state reflecting an employee's desire to remain with the organization. Kitila et al. [15] view turnover intention as the tendency of employees to consider leaving their current jobs in search of new opportunities. Steel [16] highlights turnover intention as a psychological state where employees contemplate leaving their organization, assessing alternatives based on compensation and working conditions. Perez [17] identifies key determinants of turnover intention, including supervisory support, job flexibility, employee participation, job autonomy, and working conditions.

Abelson [18] categorizes turnover causes into voluntary and involuntary types. A detailed explanation of these categories follows, along with strategies to mitigate them:Voluntary Turnover: This occurs when an employee actively decides to leave an organization, often in pursuit of better career prospects, management issues, or a more favorable work environment. Involuntary Turnover: This type happens when employees are compelled to exit their jobs due to factors such as factory closures, layoffs, forced retirements, or other unavoidable circumstances like death. Mobley [19] analyzed turnover intention by focusing on employees' desires to leave their current roles and seek new job opportunities. Saridakis [20] outlines a four-step process of turnover intention: employees assess their current job, evaluate their satisfaction with the organization, consider the costs and consequences of leaving, and compare potential alternative jobs by weighing their pros and cons. Berry [21] asserts that several factors influence employees' turnover intentions, including their attitudes, potential, evaluations from peers and managers, organizational structure, external job requirements, and personal circumstances. Rahman and Nas [22] indicate that an employee's decision to leave an organization has negative repercussions for both the employee and the organization, impacting various aspects of their operations.

2. RESEARCH METHOD

Research Hypothesized Model

In light of the research objectives and the literature review, this study is structured into three main sections: SMP (independent variable), TI (dependent variable), and SP (mediating variable). Among them, safety management practices are based on the six aspects proposed by Vinodkumar & Bhasi (2010), safety performance refers to the two aspects proposed by Yang et al. (2021), and turnover intention adopts the aspects proposed by Mobley (1977) single facet. Establish the research structure and related hypotheses.

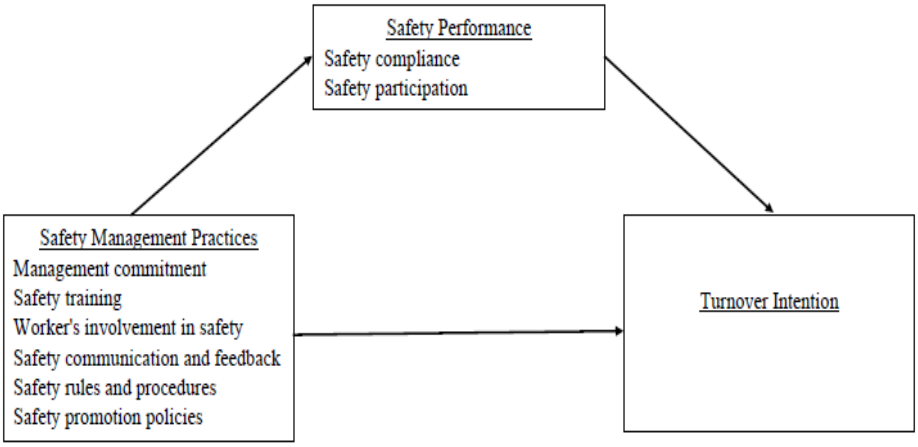

Figure 1. Hypothesized model

Research Hypothesis

Based on the research context, motivation, objectives, and literature review, this study proposes the following hypotheses to investigate the connections between SMP, SP, and TI among Vietnamese migrant workers in Tainan. The specific hypotheses are outlined as follows:

H1: There is a negative correlation between SMP and TI.
H2: SMP positively influence SP.
H3: SP negatively affects TI.

Questionnaire Design

The current study utilizes a questionnaire divided into four sections: the first sections is basic personal information; the second sections is SMP; the third sections is SP; and the fourth sections is TI.

1) Basic personal information includes ten items: gender, age, education, marital status, working time in Taiwan, whether there have been any occupational accidents, whether you have full-time work experience before coming to Taiwan, Chinese language ability, where you live in Taiwan, and pay income.
2) Safety management practices is divided into six levels with totaling 35 questions.
3) Safety performance is divided into two levels with totaling 9 questions.
4) Turnover intention has 3 questions.

Research Participants

This research focuses on Vietnamese migrant workers in Tainan, where the researcher is located. To facilitate data collection, the researcher collaborated with a service company that serves these workers. A total of 450 questionnaires were distributed, with 425 completed responses received, yielding a response rate of 94.44%. After reviewing the responses, 12 questionnaires were identified as potentially inaccurate, leading to a final total of 413 valid questionnaires. This gives a valid response rate of 91.78%.

Statistical Analysis

After collecting the questionnaires, the questionnaires were first checked, then the valid questionnaires were numbered and archived, and SPSS 20.0 was used for data analysis. Statistical methods are used as follows: descriptive statistic, reliability analysis, regression analysis, validity analysis, difference analysis, Pearson correlation analysis.

3. RESULTS AND DISCUSSIONS

Descriptive Statistic

The descriptive statistics indicate the average scores for safety management practices across six dimensions as follows: MC is 4.103, ST is 4.140, WIS is 4.087, SCF is 4.091, SRP is 4.124, and SPP is 4.088. Regarding safety performance, the average scores are 4.247 for SC and 4.195 for SP. The overall average score for turnover intention is 1.915.

Reliability, Validity and Difference Analysis

The reliability analysis shows that the Cronbach's Alpha for each dimension is greater than 0.7, demonstrating adequate internal consistency. Furthermore, the validity analysis confirms that all research scales utilized in this study are based on previously developed questionnaires, ensuring content validity. The difference analysis shows significant effects for all variables except for gender. Additionally, as shown in Table 1, detailed statistics further support these findings, highlighting specific trends and patterns within the data.

Table 1. Results of Descriptive Reliability Analytics

Variables	Feature	No. of items	Mean	Cronbach's Alpha
SMP	MC	9	4.103	0.918
	ST	6	4.140	0.849
	WIS	5	4.087	0.894
	SCF	5	4.091	0.887
	SRP	5	4.124	0.887
	SPP	5	4.088	0.898
SP	SC	4	4.247	0.808
	SP	5	4.195	0.875
TI	TI	3	1.915	0.884

Pearson Correlation Analysis

The Pearson correlation coefficients of all variables are between 0.855 - -0.368 as shown in Table 2.

Table 2. Results of Pearson Correlation Analysis

Variables		SMP						SP		TI
		MC	ST	WIS	SCF	SRP	SPP	SC	SP	TI
SMP	MC	1								
	ST	0.81	1							
	WIS	0.739	0.855	1						
	SCF	0.725	0.759	0.819	1					
	SRP	0.697	0.734	0.753	0.822	1				
	SPP	0.747	0.767	0.799	0.826	0.829	1			
SP	SC	0.624	0.641	0.614	0.614	0.654	0.718	1		
	SP	0.592	0.677	0.677	0.680	0.699	0.671	0.705	1	
TI	TI	-0.285	-0.266	-0.311	-0.331	-0.291	-0.368	0.255	-0.260	1

Regression Analysis

To determine if the sub-components of safety management practices have a significant negative effect on turnover intention, a regression analysis was carried out, using "TI" as the outcome variable. The independent variables included "MC," "ST," "WIS," "SCF," "SRP," and "SPP" In Model M1, the results indicated R^2= 0.132, F= 11.403, and p <0.001. This suggests that safety management practices have a highly significant negative effect on turnover intention, supporting the establishment of H1. Further analysis revealed that among the sub-components, "SPP" reached an extremely significant level (p<0.001), with the highest

influence reflected in the β value of -0.343. This indicates that more effective safety promotion strategies correlate with a lower willingness among Vietnamese migrant workers to leave their jobs. Show in the Table 3:

Table 3. Results o Regression Analysis of Safety Management Practices on Turnover Intention

Model	Unstandardized Coefficients		Standardized Coefficients	R Square Change	F-value	t	Sig.
	B	Std.Error	Beta				
MC	-0.073	0.112	-0.055	0.132	11.403	-0.655	0.513
ST	0.2	0.153	0.136			1.311	0.191
WIS	-0.115	0.134	-0.089			-0.853	0.394
SCF	-0.146	0.128	-0.113			-1.138	0.256
SRP	0.131	0.131	0.092			0.999	0.318
SPP	-0.405	0.118	-0.343			-3.444	0.001**

Note: *p<0.05; **0<0.01; ***p<0.001; n=413

To evaluate whether the sub-components of safety management practices positively influence safety performance, a regression analysis was conducted with "SP" as the dependent variable. The independent variables included "MC" "ST" ,"WIS", "SCF", "SRP" and "SPP" In Model M2, the results showed $R^2 = 0.627$, $F = 116.450$, and $p < 0.001$, indicating that safety management practices have a highly significant positive effect on safety performance, thereby supporting the establishment of H2.

Further analysis revealed that among the sub-components, "ST" achieved a highly significant level ($p<0.001$), while "SRP" and "SPP" also reached significant levels ($p<0.001$). Among these sub-components, "SPP" exhibited the highest influence with a β value of 0.287, followed by "SRP" at β=0.255, and "ST" with the lowest influence at β=0.231. This indicates that improvements in safety promotion policies, safety rules and procedures, and safety training lead to enhanced safety performance. Show in the Table 4:

Table 4. Results o Regression Analysis of Safety Management Practices on Safety Performance

Model	Unstandardized Coefficients		Standardized Coefficients	R Square Change	F-value	t	Sig.
	B	Std.Error	Beta				
MC	0.022	0.044	0.027	0.627	116.45	0.485	0.628
ST	0.205	0.061	0.231			3.387	0.001***
WIS	0.029	0.053	0.038			0.549	0.584
SCF	0.024	0.051	0.03			0.465	0.642
SRP	0.219	0.052	0.255			4.207	0.000***
SPP	0.205	0.047	0.287			4.397	0.000***

Note: *p<0.05; **0<0.01; ***p<0.001; n=413

To assess whether the sub-components of safety performance negatively affect turnover intention, a regression analysis was performed with "TI" as the dependent variable and "SC" and "SP" as the independent variables. In Model M3, the results indicated $R^2 = 0.073$, $F = 17.329$, and $p<0.001$, demonstrating a highly significant negative impact of safety performance on turnover intention, thereby supporting the establishment of H3. Further analysis revealed that both sub-components, "SC" and "SP" achieved significant levels ($p<0.05$). Among these, "SP" had the strongest influence, with a β value of -0.159, followed by "SC" at β=−0.143. This suggests that improved safety compliance and participation contribute to a reduction in turnover intention. Show in the Table 5:

Table 5. Results of Regression Analysis of Safety Performance on Turnover Intention

Model	Unstandardized Coefficients		Standardized Coefficients	R Square Change	F-value	t	Sig.
	B	Std.Error	Beta				
SC	-0.207	0.097	-0.143	0.073	17.329	-2.138	0.033*
SP	-0.254	0.107	-0.159			-2.379	0.018*

Note: *p<0.05; **0<0.01; ***p<0.001; n=413

4. CONCLUSIONS AND SUGGESTIONS

Safety Management Practices (SMP)

Safety management practices (SMP) are categorized into six key aspects, with a particular emphasis on the importance of enhancing safety promotion policies. These policies involve recognizing safe behaviors as advantageous for career advancement, incentivizing the reporting of safety hazards, organizing safety activities to raise employees' awareness, fostering healthy competition among staff, and ensuring that management takes proactive steps to rectify unsafe conditions. Such initiatives build employee trust and strengthen safety culture. A stable work environment lessens employees' intention to leave, encouraging them to commit and grow within the organization over the long term.

Safety Performance

In this study, safety management practices are categorized into six aspects, with particular emphasis on ST, SRP, and SPP, all of which demonstrate significant effects. The organization offers thorough ST and effective safety regulations, which help employees feel secure in their work environment and encourage compliance with these guidelines, ultimately enhancing overall safety performance. Furthermore, proactive management implementation reinforces the organization and efficiency of safety management processes.

Turnover Intention

This study found that two sub-components of safety performance-SC and SP negatively influenced employees' intention to leave the organization, with the impact of enhancing safety participation being particularly pronounced. When employees actively engage in safety initiatives, it not only demonstrates their commitment to safety and responsibility but also fosters a sense of teamwork and harmony within the workplace.

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