

Decision Latitude, Supervisor Support, and Coworker Support in Small and Medium Enterprises (SMEs): A Psychosocial Exploratory Analysis to Enhance Safety Behavior

Nachnul Ansori, Ari Widyanti, and Iftikar Z. Satalaksana

Abstract— Safety behavior is a crucial aspect that must be considered for preventing accidents in the workplace. One important factor that contributes to the improvement of safety behavior is psychosocial factors. However, the study of psychosocial factors in relation to the safety behavior in Small and Medium Enterprises (SMEs) is very limited. The purpose of this study is to analyze the influence of psychosocial factors (that are decision latitude, supervisor support, coworker support, and psychosocial demand) to the safety behavior (i.e., safety compliance and safety participation) in SMEs. The study is conducted in 29 metal's manufacturing Indonesian SMEs that involve 67 workers. A self-administered Job Content Questionnaire (JCQ) is used as an instrument in collecting the data and Partial Least Squares Structural Equation Modeling (PLS-SEM) is utilized to analyze the data. The results show that decision latitude and coworker support significantly influence safety behavior. The decision latitude has a positive effect on safety behavior. Conversely, coworker support has a negative effect on safety behavior. The implications of the result are discussed.

Index Terms— JCQ, psychosocial, safety behavior, SMEs

I. INTRODUCTION

ONE important aspect of work safety is related to safety behavior [1]. Many studies show that accidents are mostly caused by unsafe behavior in the workplace [2][3][4][5]. Good safety behavior can reduce the number of accidents, injuries, and loss of work time [6]. Therefore, the improvement of safety behavior is required to prevent work accidents [7].

Safety behavior is a behavior that supports the safety practices needed by workers in accordance with the Occupational Health and Safety (OHS) to avoid accidents [8]. The dimensions that are generally used to describe how well the level of safety behavior is safety participation and safety compliance [9]. Safety participation is concerned

with helping coworkers, supporting workplace safety programs, initiatives and efforts to improve workplace safety, while safety compliance concerns with conforming to safety procedures and work settlement in a safe manner [9][6].

One aspect that contributes to the safety behavior is related to psychosocial factor [10]. The psychosocial factor is a person-environment relationship that affects a person's psychology [11]. According to [11], psychosocial conditions can be observed from many factors such as decision latitude, supervisors support, coworkers support, and psychological demand. Decision latitude is related to the freedom of the workers in executing the tasks to achieve job demands. Supervisors' support means the level of social interaction in terms of helping each other at work by superiors, as well as, coworkers support. Psychological demand describes the level of the psychological stress in the completion of the work [12].

Most of the psychosocial study is conducted in large-scale industries in many countries. For example, the study by [13] shows that injuries and stressful work in construction were caused by a psychosocial factor in America. Similarly, Leitão et al. [14] argue that psychosocial work conditions and safety climate of Health and Safety Practitioners in the United Kingdom are related to health and mental well-being. Research in mining companies in Ghana [15] stated that psychological demand and decision latitude were significant predictors of near misses. Likewise, Li et al. [16] state that psychological, physical demands, latitude, supervisor decision support, and coworker support could affect safety compliance oilfield company in China. In addition, Blanch [17] states that the influence of decision latitude on psychological distress is fully supported by supervisors and coworkers, and psychological distress in public organization in Spanish. These factors could affect injury as one of the safety outcome parameters [13]. Learning from the large industrial scale, the psychosocial factors become very critical for enhancing workers' safety behavior. Unfortunately, a psychosocial study is very limited in Small and Medium Enterprises (SMEs).

Different from large industries, the psychosocial factor in Small and Medium Enterprises (SMEs) is not well observed (i.e., both in Indonesia and other countries). Considering the high influence of psychosocial factor on safety behavior

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that affects safety outcomes, it is important to observe psychosocial factor in SMEs. Moreover, accidents often occur in SMEs' metal manufacturing in Indonesia [18][19] [20][21]. Those accidents are majority caused by safety behavior [22]. The definition of SME in Indonesia refers to [23] where a small-scale industry is an industry that has a workforce of 5-19 workers, while the medium-scale industry is an industry with 20-99 workers. The purpose of this study is to analyze the role of psychosocial factors (i.e., decision latitude, support supervisors, coworker support, and psychological demands) in influencing safety compliance and safety participation in SMEs' metal manufacturing.

II. CONCEPTUAL MODEL

There are many studies that observe the relationship between psychosocial factors and safety behavior in large-scale industries. However, very few studies have observed them in SMEs. This study uses the theoretical model of a psychosocial factor in a large-scale industry in hospital/service [10] that social support is positively related to safety compliance, whereas both job control and interaction between social support and job control are positively related to safety participation (Fig. 1).

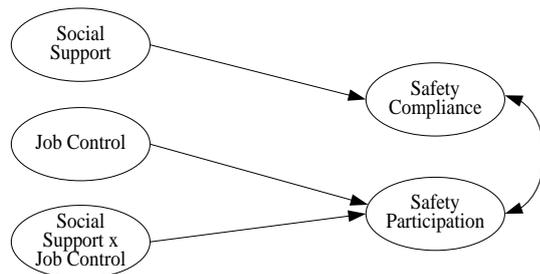


Fig. 1. Theoretical Model of Psychosocial Factors in Large-scale Industry in Service [10]

Since the present study is conducted in both SMEs and manufacture, therefore the theoretical model of psychosocial is developed. The theoretical model is developed using four from five psychosocial factors of [11] because they are more reliable in a cross-national context and occupations. The conceptual model of psychosocial factors related to safety behavior in SMEs' manufacture can be seen in Fig. 2. The hypotheses are; first, decision latitude has a positive effect on safety compliance and safety participation. Second, supervisor support has a positive effect on safety compliance and safety participation. Third, coworker support has a positive effect on safety compliance and safety participation. Fourth, psychological demand has a negative effect on safety compliance and safety participation.

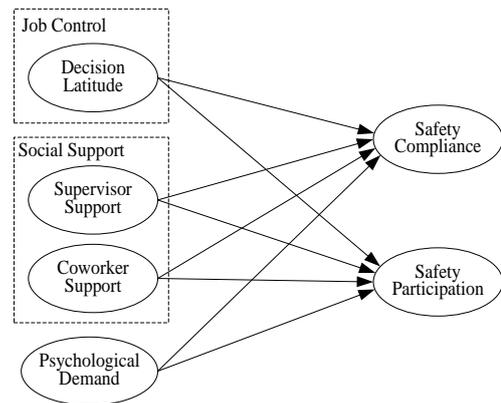


Fig. 2. Conceptual Model of Psychosocial Factors in SMEs that is proposed in this study

III. METHOD

A. Sample

Twenty-nine metal's SMEs participate voluntarily in this study. The SMEs are located in Gresik, Indonesia. A total of 67 male respondents (mean age = 40.63 years, SD = 10.38 years, and average experience = 10.81 years) are involved. A cross-sectional study is applied, and the convenience sampling method is used to collect the data.

B. Measure

Safety compliance and safety participation are observed in accordance with an instrument developed by [24]. All items are measured using a likert scale, starting from 1 (strongly disagree) to 5 (strongly agree). Meanwhile, decision latitude, supervisor support, coworker support, and psychological demand are measured using psychosocial instruments of Job Content Questionnaire (JCQ) of [11] that developed by [12] in the form of 22 items with a likert scale starting from 1 (strongly disagree) to 4 (strongly agree) with no middle value scale.

C. Procedure

SMEs' workers in metal manufactures are asked to respond to the questionnaires. If there are any difficulties, the observer provides an assistance to fill out the questionnaire on behalf of the workers. Permission is granted by the owner of the SMEs. The workers fill the questionnaires during the rest time. Partial Least Squares Structural Equation Modeling (PLS-SEM) is utilized to analyze the data, and software of Smart-PLS.3 is used for data processing.

IV. RESULT

Demographic data of respondents can be seen in Table I. The classification of age group and work experience in Table I are based on the study by [25].

TABLE I
 DEMOGRAPHIC DATA OF RESPONDENTS

Description	N	%	Total (%)
Age group (year)			
16-29	12	(18)	
30-39	18	(27)	
40-49	22	(33)	
50-59	14	(21)	
60-69	1	(1)	(100)
Work Experience (years)			
Less than 3	6	(9)	
3 to 7	22	(33)	
More than 7	39	(58)	(100)
Education			
No Formal Education	2	(3)	
Elementary School	7	(10)	
Junior High School	14	(21)	
Senior High School	42	(63)	
College/University	2	(3)	(100)
Social Relation with the owner			
Family	25	(37)	
Friend	9	(13)	
Neighbor	1	(2)	
Other (No Relation)	32	(48)	(100)

The result of validity and reliability test of the measurement model can be seen in Table II and Table III. The validity test is done by observing the value of outer loading. The outer loading should be at least 0.7 for confirmatory study, whereas 0.4 for exploratory study [26]. In detail, there are 4 valid indicators of decision latitude (out of 9 indicators), 3 valid indicators of supervisor support (out of 4 indicators), 3 valid indicators of coworker support (out of 4 indicators), and no valid indicator of psychological demands (out of 5 indicators). Likewise, there are 3 valid indicators of safety compliance (out of 3 indicators) and 3 valid indicators of safety participation (out of 3 indicators).

The results of the reliability test, as can be seen in Table III are that cronbach's alpha greater than 0.6 for all factors. This is still reliable in relation to the exploratory purpose [26].

TABLE II
 OUTER LOADINGS OF INDICATORS

Indicators	Decision Latitude (DL)	Supervisor Support (SS)	Coworker Support (CS)	Safety Compliance (SC)	Safety Participation (SP)
DL_1	0.640				
DL_2 ^a	-				
DL_3 ^a	-				
DL_4 ^a	-				
DL_5	0.862				
DL_6	0.648				
DL_7	0.655				
DL_8 ^a	-				
DL_9 ^a	-				
SS_1		0.849			
SS_2		0.844			
SS_3 ^a		-			
SS_4		0.579			
CS_1 ^a			-		
CS_2			0.591		
CS_3			0.838		
CS_4			0.799		
SC_1				0.925	
SC_2				0.884	
SC_3				0.898	
SP_1					0.882
SP_2					0.908
SP_3					0.523

Note: ^aIndicator was removed for further analysis

TABLE III
 RELIABILITY OF PSYCHOSOCIAL FACTORS

Psychosocial Factors	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Decision Latitude (DL)	0.666	0.797	0.500
Supervisor Support (SS)	0.673	0.807	0.589
Coworker Support (CS)	0.623	0.791	0.563
Safety Compliance (SC)	0.886	0.929	0.815
Safety Participation (SP)	0.699	0.826	0.625

In addition, the coefficient of determination (R-Square/R²) for safety compliance is 0.500 and safety participation is 0.433 (Fig. 3). The R² shows the value of the variance in the dependent variable that can be explained by the independent variable. This shows that the variance of both safety compliance and safety participation are moderately explained by the model.

The empirical structural model can be seen in Table IV. Decision latitude has a positive effect on safety compliance and safety participation and coworker support has a negative effect on safety compliance and safety participation. While supervisor support and psychological demand are not significant, therefore these factors are removed from the model (see Fig. 3).

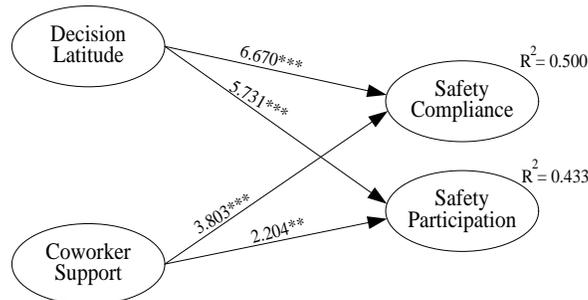


Fig. 3. The Empirical Model of Psychosocial Factor in SMEs

TABLE IV
 RESULT OF STRUCTURAL MODEL

Path	β	T Statistics	P Values	Sig.
Decision Latitude -> Safety Compliance	0.530	6.670	0.000	***
Decision Latitude -> Safety Participation	0.475	5.731	0.000	***
Supervisor Support -> Safety Compliance	0.048	0.449	0.653	n.s
Supervisor Support -> Safety Participation	0.181	1.781	0.075	n.s
Coworker Support -> Safety Compliance	-0.330	3.803	0.000	***
Coworker Support -> Safety Participation	-0.233	2.204	0.028	**

Note: β =path coefficient, ***P<0.01, **P<0.05, n.s=not significant

V. DISCUSSION

The purpose of this study is to analyze the influence of psychosocial factors on safety behavior. The results show that decision latitude has a positive effect on both safety compliance and safety participation. Conversely, coworker support has a negative effect on both safety compliance and safety participation. In addition, supervisor support has no effect on safety behavior.

Decision latitude has a positive effect on safety participation. Referring to the definition of decision latitude, it is related to the freedom that is permitted to workers how to carry out tasks to achieve the completion of the job [12]. Giving freedom to SMEs' workers in completing their work can improve safety participation. The result of this study is in line with [10] that the workers' autonomy in hospitals (large-scale industries) for preferring the time and methods of their work influences safety participation in the United Kingdom. Similarly, decisions latitude has a positive effect on safety compliance. This is in line with [27] and [28] that the high decision latitude could get involved in safety procedures and safety job descriptions to enhance the safety of the work environment.

Coworker support has a negative effect on safety compliance and safety participation. This result is contrary to [16] that coworker support has a positive effect on safety compliance at the company's oilfield in China. This result should be needed further study to explain this phenomenon.

Supervisor support does not affect safety compliance and safety participation. This might because many supervisors are mostly the worker's family. In this condition, workers feel any paternalistic considerations in the completion of work, so it would be any difficulties in implementing OHS rules [29]. In addition, the high familial relationship results in poor OHS management and it tends to compromise the OHS implementation [30][31]. Therefore, there is difficulty in implementing safety objectively because of the high flexibility of work rules in SMEs [32][33].

This study has various limitations such as the small number of samples and the results are still in the form of exploratory study. Therefore, further research is suggested to use more sample and utilized a confirmatory approach to confirm the result.

VI. CONCLUSION

The strong influence of psychosocial factors on safety behavior in Indonesian SMEs are decision latitude and coworker support. Decision latitude has a positive effect on safety behavior. In contrast, coworker support has a negative effect on safety behavior. Supervisor support has no effect on safety behavior.

ACKNOWLEDGMENT

The study is supported by The Indonesia Endowment Fund for Education (LPDP) - Ministry of Finance through doctoral program scholarship.

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Date of modification:

February 25th, 2019

Brief description of the changes:

The number of SMEs observed 18 change into 29 (In Abstract and Method/Sample).

The definition number of a small-scale industry should be starting from 5 workers instead of 4 workers.