The Role of Safety Silence Motives to Safety Communication and Safety Participation in Different Sectors of Small and Medium Enterprises
Investigation Results on Two Kinds of Industries in Indonesia

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ABSTRACT

Background: A number of accidents have occurred in small and medium enterprises (SMEs). Efforts in reducing accidents have been undertaken through the implementation of safety behaviors. Unfortunately, few studies have examined motives behind unsafe behaviors, such as safety silence motives. This study aimed to observe the motives underlying safety behaviors, namely safety silence motive (SSM) (SSM-relation, SSM-climate, SSM-issue, and SSM-job) and to evaluate the effect of SSM and safety communication on safety participation in different industrial sectors and scales.

Materials and Methods: Eighty workers from two industrial sectors and scales of SMEs were involved. They were instructed to fill out a set of questionnaires. A five-Likert scale was used to respond. An independent t test was applied to find any significant differences. The partial least square-structural equation modeling for multigroup was used to develop a model on relations among the variables.

Results: The results showed that SSM scores were high in SMEs, and the scores were different across industrial sectors and scales. SSM had a negative influence on safety communication, and safety communication positively influenced safety participation.

Conclusion: The study of SSM, safety communication, and safety participation in different sectors and scales should be separated in SMEs.

1. Introduction

Previous studies have shown that small and medium enterprises (SMEs) are associated with high occupational safety risks. Compared to large-scale enterprises, SMEs seem to have higher occupational safety risks. A higher risk in SMEs might result from workers' low education, workers' lack of safety awareness, informal safety procedures, and poor implementation of safety management [1].

Although a higher occupational safety risk is associated with SMEs, unfortunately, lack of reports on accidents in SMEs is available [2]. This condition appears to be contrary to large-scale enterprises in which they have to apply safety management systems and comply with safety regulations [3].

There are several reasons for a high number of unreported accidents found in SMEs. Probst et al. [4] found that a high number of unreported accidents correlate with poor safety climates (defined as a set of perceptions by workers regarding the organizational safety aspects of the workplace). Other studies found that unreported accidents are due to the fear of negative consequences given by the management. This fear and unwillingness to report refer to safety silence [4,5].

Safety silence is defined as a type of silence when workers do not talk to supervisors about safety issues [6]. According to Manapragada and Bruk-Lee [6], safety silence might be triggered by some factors called safety silence motive (SSM), which refers to the motive of workers' safety silence to their working environments. SSM explains the reasons of why workers do not talk to their superiors about safety issues experienced in the work places. The SSM

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Safety behavior can be indicated by safety participation. Safety participation is a set of activities related to helping coworkers and supporting safety programs, initiatives, and efforts to improve workplace safety [10]. In the end, safety participation can decrease the number of accidents in the workplace [11]. This is supported by Widyan et al. [12] that the safety behavior approach can decrease work accident rates in the oil and gas company in Indonesia.

A number of previous studies have been conducted to investigate the effect of Scom on safety participation (SB-P). The research has been focused on both SMEs [13] and large-scale enterprises [14,15]. However, considering the influence of safety silence on Scom, only few studies have looked at these three factors as the whole. The exception includes a study by Manapragada and Bruk-Lee [6] who observed the effect of SSM on Scom of nurses in a large hospital enterprise.

A higher occupational safety risk and unreported accidents in SMEs are also found in Indonesia. Among the manufacturing sectors of Indonesian SMEs [refers to Indonesian Statistical Bureau (Badan Pusat Statistik/BPS in Indonesia [16])], the craft and metal are two enterprises suffering from high hazards and risk accidents (see Agustina et al. [17] and Harncharoen et al. [18] for examples of accident in batik and metal enterprises, respectively). In detail, most of the safety risks found in craft industries are low back pain due to the unergonomic work position [19] and injuries relate to material contact with the body such skin irritation due to chemical exposure [17,20], whereas in metal industries, the most common injuries are related to musculoskeletal disorders because of the awkward posture while operating the equipment [21], material fraction, and electrical shortcut especially for grinding and welding processes [22,23].

Limited studies have reported a high number of accidents that happen in metal industries and craft industries. In metal industries, for example, Ansori et al. [21] observed 45% of accidents experienced by 150 workers. In addition, Suprianto and Evendi [23] reported 66.7% of accidents experienced by the workers in metal workshops. In craft industries, several studies found low safety performance in craft industries in Madura Island [20] and high safety risk in those industries [24]. Interestingly, a special attention has been paid by the Indonesian government to both craft and metal enterprises. A craft enterprise—batik—is acknowledged by the United Nations of Educational, Scientific, and Cultural Organization as Indonesian heritage [25] and has contributed to the national economy especially in persisting the global economic crisis in 1997 [26]. Meanwhile, metal SMEs have economically been growing dramatically in Indonesia up to 11.97% in 2016 [27].

Indonesian Statistical Bureau [28] defines small enterprises (SEs) as industries that employ 5 up to 19 workers, whereas medium enterprises (MEs) employ 20 up to 99 workers. However, SEs and MEs have different styles in managing safety. The safety standards, such as formal operation and safety practices, in SEs seem to be worse than MEs [29]. Besides, Legg et al. [2] stated that human resources in SEs are worse than MEs such as work divisions and support professions.

This study aimed to observe the SSM, Scoms, and SB-P in two industrial sectors (craft and metal) and two scales (SEs and MEs) in Indonesia. In addition, this study investigates relationships among these three factors as seen in Fig. 1. The two important sectors are observed in this study because they are giving great national economic supports for Indonesia and, simultaneously, have high risks in terms of accidents. Meanwhile, the reason to examine the two scales of enterprises is due to different characteristics between them [21,30].

2. Materials and methods

2.1. Sample

In this study, a survey was conducted in two industrial sectors, namely craft and metal enterprises. The craft enterprise in this present study refers to a batik industry (patterned fabric industry having a certain character which is made specifically by writing or applying wax to the fabric and processed in a certain way by using
Twelve SEs and four MEs of Indonesian craft enterprises were involved in this study. The enterprises are located in Madura Island as the center of batik as a creative industry in East Java, Indonesia. It should be noted that the average number of employees in each SME in Indonesia is limited (small enterprise: 5–19 workers; medium enterprise: 20–99 workers, according to Indonesian Statistical Bureau/BPS [16]). Representing those SEs and MEs, a total of 25 respondents of SEs and 15 respondents of MEs participated in this study. Meanwhile, fifteen SEs and three MEs of metal in Gresik (East Java of Indonesia) were engaged in the study, with a total of 27 respondents of SEs and 13 respondents of MEs.

The items of the study (in Bahasa Indonesia)

| Constructs and its related items | Code |
|----------------------------------|------|
| SSM-relation                     |      |
| 1                                | SSM-R |
| 2                                |       |
| 3                                |       |
| 4                                |       |
| 5                                |       |
| 6                                |       |
| 7                                |       |
| 8                                |       |
| SSM-climate                      | SSM-C |
| 1                                |       |
| 2                                |       |
| 3                                |       |
| 4                                |       |
| 5                                |       |
| 6                                |       |
| 7                                |       |
| 8                                |       |
| SSM-issue                        | SSM-I |
| 1                                |       |
| 2                                |       |
| 3                                |       |
| 4                                |       |
| 5                                |       |
| 6                                |       |
| 7                                |       |
| 8                                |       |
| SSM-job                          | SSM-J |
| 1                                |       |
| 2                                |       |
| 3                                |       |
| 4                                |       |
| 5                                |       |
| 6                                |       |
| 7                                |       |
| 8                                |       |
| Safety communication             | Scom |
| 1                                |       |
| 2                                |       |
| 3                                |       |
| 4                                |       |
| Safety participation             | SB-P |
| 1                                |       |
| 2                                |       |
| 3                                |       |

SSM, safety silence motive.
(SSM-I), and SSM-job (SSM-J). In total, the SSM questionnaires consist of twenty-six items. Scom was measured with four items developed by Vinodkumar and Bhasi [31]. SB-P was observed with three items [32]. In this study, all items were measured using a Likert scale, starting from 1 (strongly disagree) to 5 (strongly agree). The items can be seen in Table 1.

2.3. Procedure

Workers in craft and metal enterprises in both SEs and MEs were asked to fill out questionnaires. If they found any difficulties, the surveyor would help to fill out the questionnaire on behalf of the workers. The permission to conduct the research was granted by the owner of the SEs and MEs. The workers filled out the questionnaires during rest breaks.

2.4. Data analysis

A t test was used to evaluate the differences in mean perceptions of workers based on the sectors and scales. The possible relationships among variables were assessed using the partial least square structural equation modeling (PLS-SEM) algorithm, while the multigroup analysis (MGA) was observed by the procedure of measurement invariance of composite models (MICOM).

3. Results

3.1. Demographic data of respondents

The demographic data of respondents as a function of different sectors of industries (craft and metal enterprises) and different industry scales (SEs and MEs) can be seen in Table 2.

### Table 2

| Industrial sectors and industrial scales | Craft | Metal | Total |
|----------------------------------------|-------|-------|-------|
|                                        | SEs   | MEs   | Total |
| Number of subjects                     | 25 (100) | 15 (100) | 40 (100) |
| Gender                                 |       |       |       |
| Male                                   | 5 (20) | 0 (0)  | 5 (12) |
| Female                                 | 20 (80) | 15 (100) | 35 (88) |
| Age group (year)                       |       |       |       |
| 16–29                                  | 4 (16) | 7 (47) | 11 (28) |
| 30–39                                  | 6 (24) | 1 (7)  | 7 (17) |
| 40–49                                  | 8 (32) | 4 (27) | 12 (30) |
| 50–59                                  | 6 (24) | 2 (12) | 8 (20) |
| 60–69                                  | 1 (4)  | 1 (7)  | 2 (5)  |
| Work Experience (year)                 |       |       |       |
| Less than 3                            | 2 (8)  | 2 (13) | 4 (10) |
| 3 to 7                                 | 2 (8)  | 6 (40) | 8 (20) |
| More than 7                            | 21 (84) | 7 (47) | 28 (70) |
| Education                              |       |       |       |
| No formal education                    | 0 (0)  | 1 (7)  | 1 (3)  |
| Elementary school                      | 19 (76) | 10 (66) | 29 (72) |
| Junior high school                     | 5 (20) | 4 (27) | 9 (22) |
| Senior high school                     | 1 (4)  | 0 (0)  | 1 (3)  |
| College/university                     | 0 (0)  | 0 (0)  | 0 (0)  |
| Social relation                        |       |       |       |
| Family                                 | 17 (68) | 4 (27) | 21 (52) |
| Friend                                 | 1 (4)  | 0 (0)  | 1 (3)  |
| Neighbor                               | 5 (20) | 6 (40) | 11 (28) |
| Other (no relation)                    | 2 (8)  | 5 (33) | 7 (17) |

MEs, medium enterprises; SEs, small enterprises.
average variance extracted (AVE). The result of the measurement model can be seen in Table 5.

The measurement model showed that all indicators were valid in Table 5. The results of the measurement model based on both sectors and scales obtained that all loading factors for the entire construct consisted of SSM-J, SSM-R, Scom, and SB-P had a value of more than 0.4. Then, the construct had fulfilled convergent validity which had CR more than 0.7 and AVE more than 0.5 for both groups.

### Table 3
Result of data collection

| Construct/associated items | Industrial sectors | | Industrial scales | | |
|---------------------------|--------------------|-------------------|-------------------|-------------------|
|                           | Craft | Metal | SEs | MEs |
|                           | Mean | Standard deviation | Mean | Standard deviation | Mean | Standard deviation |
| SSM-R                    | 4.16 | 0.81 | 3.28 | 1.04 | 3.68 | 1.10 | 3.80 | 0.96 |
| SSM-R1                   | 4.75 | 0.44 | 3.25 | 1.13 | 3.90 | 1.22 | 4.18 | 0.94 |
| SSM-R2                   | 4.35 | 0.70 | 3.48 | 1.13 | 3.94 | 1.07 | 3.86 | 0.97 |
| SSM-R3                   | 4.15 | 0.86 | 2.93 | 0.97 | 3.48 | 1.15 | 3.64 | 1.03 |
| SSM-R4                   | 3.75 | 0.78 | 3.40 | 1.17 | 3.60 | 1.07 | 3.54 | 0.88 |
| SSM-R5                   | 4.00 | 0.75 | 3.75 | 1.06 | 3.94 | 0.94 | 3.75 | 0.89 |
| SSM-R6                   | 4.33 | 1.02 | 3.58 | 1.06 | 3.88 | 1.10 | 4.07 | 1.12 |
| SSM-R7                   | 3.85 | 1.03 | 3.10 | 0.90 | 3.37 | 1.12 | 3.68 | 0.82 |
| SSM-R8                   | 4.13 | 0.91 | 2.80 | 0.88 | 3.33 | 1.13 | 3.71 | 1.05 |
| SSM-C                    | 3.23 | 1.05 | 3.84 | 0.97 | 3.50 | 1.09 | 3.61 | 1.03 |
| SSM-C1                   | 3.15 | 1.12 | 3.45 | 0.99 | 3.25 | 1.10 | 3.39 | 0.99 |
| SSM-C2                   | 2.95 | 1.22 | 3.85 | 1.00 | 3.38 | 1.19 | 3.43 | 1.23 |
| SSM-C3                   | 2.90 | 0.96 | 4.03 | 1.19 | 3.48 | 1.21 | 3.43 | 1.23 |
| SSM-C4                   | 3.08 | 0.92 | 3.98 | 0.83 | 3.54 | 0.94 | 3.50 | 1.07 |
| SSM-C5                   | 3.35 | 0.86 | 3.60 | 1.03 | 3.40 | 0.98 | 3.61 | 0.92 |
| SSM-C6                   | 3.78 | 0.77 | 3.93 | 0.92 | 3.79 | 0.87 | 3.96 | 0.79 |
| SSM-C7                   | 2.98 | 1.05 | 4.05 | 0.78 | 3.56 | 1.09 | 3.43 | 1.03 |
| SSM-C8                   | 3.68 | 1.53 | 3.83 | 0.98 | 3.56 | 1.38 | 4.11 | 0.99 |
| SSM-I                    | 2.93 | 1.40 | 3.66 | 1.04 | 3.49 | 1.21 | 2.94 | 1.33 |
| SSM-I1                   | 3.23 | 1.48 | 3.85 | 0.95 | 3.69 | 1.20 | 3.25 | 1.38 |
| SSM-I2                   | 3.38 | 1.53 | 3.90 | 1.17 | 3.81 | 1.30 | 3.32 | 1.49 |
| SSM-I3                   | 3.00 | 1.30 | 3.75 | 1.08 | 3.63 | 1.24 | 2.89 | 1.13 |
| SSM-I4                   | 2.63 | 1.48 | 3.53 | 0.96 | 3.35 | 1.25 | 2.57 | 1.32 |
| SSM-I5                   | 2.75 | 1.48 | 3.58 | 0.98 | 3.40 | 1.22 | 2.71 | 1.38 |
| SSM-I6                   | 2.63 | 1.10 | 3.38 | 1.08 | 3.06 | 1.07 | 2.89 | 1.29 |
| SSM-J                    | 3.28 | 1.32 | 3.05 | 0.97 | 3.11 | 1.17 | 3.27 | 1.14 |
| SSM-J1                   | 3.15 | 1.29 | 3.03 | 0.86 | 3.17 | 1.12 | 2.93 | 1.05 |
| SSM-J2                   | 2.85 | 1.35 | 2.90 | 1.01 | 2.81 | 1.16 | 3.00 | 1.25 |
| SSM-J3                   | 3.10 | 1.37 | 2.70 | 0.97 | 2.73 | 1.25 | 3.21 | 1.03 |
| SSM-J4                   | 4.03 | 1.27 | 3.58 | 1.03 | 3.73 | 1.14 | 3.93 | 1.25 |
| Scom                     | 2.46 | 0.99 | 3.01 | 0.91 | 2.67 | 1.12 | 2.84 | 0.94 |
| Scom1                    | 2.70 | 1.20 | 3.00 | 0.91 | 2.67 | 1.08 | 3.11 | 0.99 |
| Scom2                    | 1.88 | 0.72 | 3.03 | 0.89 | 2.38 | 1.01 | 2.57 | 0.96 |
| Scom3                    | 3.20 | 1.07 | 2.55 | 0.99 | 2.98 | 1.20 | 2.68 | 0.77 |
| Scom4                    | 2.05 | 0.96 | 3.48 | 0.85 | 2.63 | 1.19 | 3.00 | 1.05 |
| SB-P                     | 2.88 | 1.12 | 3.10 | 0.86 | 2.94 | 0.99 | 3.10 | 1.06 |
| SB-P1                    | 2.65 | 1.12 | 3.03 | 0.92 | 2.77 | 1.00 | 2.96 | 1.10 |
| SB-P2                    | 3.10 | 1.30 | 2.85 | 0.89 | 2.87 | 1.17 | 3.18 | 0.98 |
| SB-P3                    | 2.90 | 0.96 | 3.43 | 0.78 | 3.17 | 0.81 | 3.14 | 1.08 |

MEs, medium enterprises; SEs, small enterprises.

| Safety construct | Craft | Metal | SEs | MEs |
|------------------|-------|-------|-----|-----|
| SSM-R            | Mean 4.17 (SD = 0.51) | Mean 3.29 (SD = 0.76) | Mean 3.68 (SD = 0.82) | Mean 3.81 (SD = 0.72) |
| SSM-C            | Mean 3.23 (SD = 0.59) | Mean 3.84 (SD = 0.69) | Mean 3.50 (SD = 0.70) | Mean 3.61 (SD = 0.72) |
| SSM-I            | Mean 2.93 (SD = 1.05) | Mean 3.66 (SD = 0.79) | Mean 3.49 (SD = 0.91) | Mean 2.94 (SD = 1.05) |
| SSM-J            | Mean 3.28 (SD = 1.11) | Mean 3.05 (SD = 0.73) | Mean 3.11 (SD = 0.98) | Mean 3.27 (SD = 0.86) |
| Scom             | Mean 2.44 (SD = 0.46) | Mean 3.01 (SD = 0.67) | Mean 2.67 (SD = 0.65) | Mean 2.84 (SD = 0.61) |
| SB-P             | Mean 2.88 (SD = 0.94) | Mean 3.10 (SD = 0.73) | Mean 2.94 (SD = 0.83) | Mean 3.10 (SD = 0.87) |

*p < 0.05, **p < 0.01.
MEs, medium enterprises; SEs, small enterprises; SSM, safety silence motive.
However, the AVE of SSM for metal based on the sector was lower than 0.5. It was still acceptable because the SSM was the second order [37], and its CR was more than 0.6 [38].

With multigroup (both industrial sectors and scales), the procedure of MGA was proposed. A procedure in evaluating MGA consisted of the Heterotrait-eMonotrait (HTMT) and MICOM. The HTMT test aimed to assess discriminant validity, while MICOM was used to compare two groups whether the measurement model could determine the same attribute size under different conditions [39]. This was intended to assess configurated invariance, compositional invariance, and assessment of the composite equality means and variances needed to compare and interpret MGA group-specific differences.

The result of HTMT gained that all constructs both sectors and scales had HTMT values less than 0.9 that conformed to the HTMT requirement [36] as in Table 6. Then, the result of MICOM based on industrial sectors and scales as per Tables 7 and 8, respectively. Table 7 showed that the MICOM based on industrial sectors found that three constructs (i.e., SSM-J, Scom, and SB-P) fulfilled the compositional invariance. The assessment results informed that three constructs have fulfilled the partial measurement invariance based on the value of the equal mean assessment and equal variance assessment (i.e., SSM-J, SSM-R, and Scom), while one construct conformed to full measurement invariance (i.e., SB-P). Meanwhile, Table 8 showed the result based on industrial scales that SSM-J did not meet the compositional invariance; however, it still conformed to the equal mean assessment and equal variance assessment. The other constructs (i.e., SSM-R, Scom, and SB-P) were available for all invariance criteria measurements.

Finally, the result of MGA as per hypothesis testing (refers to path coefficients) could be seen in Table 9. The results showed that there was a significant path coefficient difference in effect on the SSM described by the SSM-J based sector. Then, in both industrial sectors, the results informed a significant influence of Scom on SB-P (hypothesis 2), and also SSM significantly reflected by SSM-J and SSM-R in both industrial sectors. Based on the industrial scale, SSM had a significant effect on Scom (hypothesis 1), and in turn Scom had a significant effect on SB-P (hypothesis 2) in both industrial scales. Besides, the SSM reflected by the SSM-J and SSM-R were also significant.
SSM-J affected Scom based on an industrial scale only. This informed that it is important to consider the effect of constructs based on industrial scale differences.

4. Discussion

This study aimed to observe SSM in different industrial sectors (craft and metal industries) and different industrial scales (small and medium enterprises) in Indonesia and evaluate the effect of SSM on Scom and SSM on SB-P. The results showed that SSM in Indonesian’s SMEs is high. In addition, SSM was found to be SSM on Scom and Scom on SB-P. The results showed that SSM in and medium enterprises) in Indonesia and evaluate the effect of constructs based on industrial scale differences.

Table 7

| Constructs | Compositional invariance (correlation – 1) | Partial measurement invariance established | Equal mean assessment | Equal variance assessment | Full measurement invariance established |
|------------|-------------------------------------------|------------------------------------------|----------------------|--------------------------|----------------------------------------|
|            | C – 1                                      | Confidence interval                      | Differences          | Confidence interval      | Equal                                   | Differences          | Confidence interval | Equal                                   | Full measurement invariance established |                       |
| SSM-J      | 0.995 [0.984, 1.000]                       | Yes                                      | 0.344 [-0.436, 0.453] | Yes                      | 0.864 [-0.441, 0.452]                  | No                                  | No                  |                                          |                                        |
| SSM-R      | 0.996 [0.997, 1.000]                       | No                                       | 1.158 [-0.438, 0.442] | No                      | -0.503 [-0.510, 0.503]                 | Yes                                  | No                  |                                          |                                        |
| Scom       | 0.992 [0.997, 1.000]                       | Yes                                      | -1.160 [-0.440, 0.439] | No                      | 0.032 [-0.544, 0.511]                 | Yes                                  | No                  |                                          |                                        |
| SB-P       | 0.995 [0.971, 1.000]                       | Yes                                      | -0.359 [-0.443, 0.443] | Yes                      | 0.470 [-0.463, 0.486]                 | Yes                                  | Yes                 |                                          |                                        |

The results configuration of constructs influenced by industrial sectors and scales could be seen in Figs. 2 and 3. It showed that the effect of Scom on SB-P was significant in both different sectors and scales. Meanwhile, the influence of SSM described by SSM-R and SSM-J affected Scom based on an industrial scale only. This informed that it is important to consider the effect of constructs based on industrial scale differences.

Table 8

| Constructs | Compositional invariance (correlation – 1) | Partial measurement invariance established | Equal mean assessment | Equal variance assessment | Full measurement invariance established |
|------------|-------------------------------------------|------------------------------------------|----------------------|--------------------------|----------------------------------------|
|            | C – 1                                      | Confidence interval                      | Differences          | Confidence interval      | Equal                                   | Differences          | Confidence interval | Equal                                   | Full measurement invariance established |                       |
| SSM-J      | 0.969 [0.981, 1.000]                       | No                                       | -0.162 [-0.457, 0.475] | Yes                      | 0.297 [-0.438, 0.516]                  | Yes                                  | No                  |                                          |                                        |
| SSM-R      | 0.999 [0.998, 1.000]                       | Yes                                      | -0.191 [-0.457, 0.484] | Yes                      | 0.259 [-0.481, 0.606]                 | Yes                                  | Yes                 |                                          |                                        |
| Scom       | 1.000 [0.989, 1.000]                       | Yes                                      | -0.355 [-0.452, 0.463] | Yes                      | 0.192 [-0.491, 0.608]                 | Yes                                  | Yes                 |                                          |                                        |
| SB-P       | 1.000 [0.962, 1.000]                       | Yes                                      | -0.160 [-0.478, 0.440] | Yes                      | -0.180 [-0.469, 0.581]                | Yes                                  | Yes                 |                                          |                                        |

4. Discussion

This study aimed to observe SSM in different industrial sectors (craft and metal industries) and different industrial scales (small and medium enterprises) in Indonesia and evaluate the effect of SSM on Scom and SSM on SB-P. The results showed that SSM in Indonesian’s SMEs is high. In addition, SSM was found to be different based on industrial sectors and scales. In general, SSM generally affects Scom and Scom on SB-P. The results showed that SSM in and medium enterprises) in Indonesia and evaluate the effect of constructs based on industrial scale differences.

Table 9

| Hypothesis | Relationship | Based sectors | Path coefficient difference based sectors (craft–Metal) | Supported based sectors | Path coefficient difference based sectors (SEs–MEs) | Supported based scales | Path coefficient difference based scales (SEs–MEs) | Supported based scales |
|------------|--------------|---------------|--------------------------------------------------------|-------------------------|------------------------------------------------------|------------------------|--------------------------------------------------|------------------------|
| Hypothesis 1 | SSM → Scom   | Craft         | -0.027                                                 | No                      | 0.273                                                | No                     | 0.054                                            | No                     |
|             |              | Metal         | -0.300                                                 |                         |                                                      |                        |                                                   |                        |
| Hypothesis 2 | Scom → SB-P  | Craft         | 0.572**                                                | Yes                     | 0.111                                                | 0.628**                | 0.531**                                          | Yes                    |
|             |              | Metal         | 0.682**                                                |                         |                                                      |                        |                                                   |                        |
|             |              |                | - SSM → SSM-J                                          | 0.841**                 | 0.158*                                                | 0.760**                | 0.731**                                          | Yes                    |
|             |              |                | - SSM → SSM-R                                          | 0.913**                 | 0.022                                                | 0.929**                | 0.949**                                          | Yes                    |

*p < 0.05, **p < 0.01.

SB-P, safety participation; Scom, safety communication; SSM-J, SSM-job; SSM-R, SSM-relation; SSM, safety silence motive.
to communicate the necessary safety issues. Lastly, the different results (i.e., craft and metal industries) are might be because of the absence of government regulation regarding the standardization of the implementation of work safety in SMEs. The Indonesian government set a safety regulation for big companies for some reasons such as to comply with the international standard and regulations. In contrast, the regulation cannot yet be applied to SMEs because of the large number of Indonesian SMEs and the lack of monitoring and evaluation process.

In general, SSM negatively affects Scom. Workers are silent to speak up about safety issues if they feel uncomfortable discussing their ideas and concerns about workplace safety with their owner-manager. Therefore, the high SSM value of workers indicates the low Scom to share their ideas and concerns about workplace safety with their owner-manager [8]. These results are in line with the research by Manapragada and Bruk-Lee [6] that SSM negatively affects Scom in a case study of nurses in a hospital.

SSM significantly influences SB-P in both industrial sectors and scales. As stated by Neal et al. [10], SB-P is an activity related to helping coworkers and supporting safety programs, initiatives as well as efforts to improve workplace safety. The characteristics of workers’ SMEs in the form of high intensity of interaction make it easier for workers to engage in communication [2,41]. Therefore, Scom in SMEs will ensure that workers will reveal their initiatives and efforts to SB-P. This result is supported by Amponsah-Tawiah and Adu [42], Al-Haadir et al. [43], Shin et al. [14] and Seo et al. [15] that Scoms support workers’ safety performance, particularly, in SB-P.

This study has some limitations. First, the present study has a limited number of samples because of restricted permits. Even the number of samples is limited; however, the sample is considered to represent the number of SMEs involved in the study. Therefore, further study is suggested to collect more samples. Second, this study only evaluates two sectors of industries. Because there are twenty-three sectors of industries in Indonesia [18], further study is expected to do similar research for other sectors to generalize the result. Third, the next study should involve accident data to show the safety outcomes of the safety constructs relation, especially the association between SB-P and accidents. This suggestion is in line with the result of Wallace [44] that SB-P, as a part of safety behavior, has a significantly negative relationship with accidents.

Despite its limitations, this study generally gives a valuable novel contribution in the safety field SMEs and Indonesian SMEs in particular because this study provides empirical data on SSM, Scom, SB-P, and the relationships among them. This empirical study is also the first step in further comprehensive studies as an effort to maximize safety behavior and safety in SMEs.

5. Conclusion

SSM in both sectors (craft and metal) and scales (SEs and MEs) are high. SSM’s values are different in both industrial sectors and scales. Therefore, in the next research, different sectors and scales should be separately analyzed. In general, SSM influences Scom, and Scom influences SB-P.

Conflicts of interest

All authors have no conflicts of interest to declare.

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