Gac Sanit. 2021;35(S2):S348–S359

An analysis of pivotal factors in the implementation of occupational health and safety management systems in micro, small and medium enterprises (MSMEs): Literature review

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ARTICLE INFO

Article history:
Received 28 June 2021
Accepted 30 July 2021

Keywords:
Occupational Health and Safety
Management System
Systematic review
Micro
Small and medium enterprises

ABSTRACT

Objective: In its aim to develop a model of an occupational safety and health management system (OSHMS) for MSMEs in Indonesia, this study seeks to explore crucial factors in relation to the implementation of such a system in MSMEs by conducting a review of previous studies on the topic.
Methods: This systematic review is an exploratory study from several online databases our using a combination of two keywords that refer to the population and exposure variables in the PROSPERO Approach by using the "AND" strategy. Each literature goes through selection based on PRISMA flow chart. A Critical Appraisal Skill Programme (CASP) checklist for risk of bias assessment was used for the evidence quality appraisal.
Result: From 37 papers, books, online books and local articles were selected, we identified pivotal factors in the implementation of OHSMS in MSMEs which can be classified into downstream factors (OSH training, commitment, risk management, and communication), middle stream factors (support from the third party), and upstream factors (the role of government).
Conclusion: Various pivotal factors in promoting OSH implementation at MSMEs can be seen as role of MSMEs actors (employer and employee); third party and government.

Introduction

Micro, small, and medium enterprises (MSMEs) plays a dominant role in Indonesian economic. A report on 2013 the number of MSMEs in Indonesia is growing by 13% annually[1]; followed by the absorption of the labour force in MSMEs, which according to Bank Indonesia (2016) is 7% per year of the total workforce.[2]

Regardless of the level of work formality, safety is among the pivotal factors in the workplace. Employees' ignorance about how to perform their job safely, factors causing the occurrence of accidents in the workplace, documentation and reporting systems are problems faced by MSMEs.

Workplace accidents occur at higher rates in small industries than in larger ones.[3,4] However, in practice, MSMEs need to pay more attention to the issue, since it has become a centre of attention due to the limited number of human resources and the low level of understanding about occupational health and safety.

Occupational health and safety management systems aim to handle and identify risks related to health and safety at work to prevent accidents.[5] The main objective of occupational health and safety management systems is to reduce or prevent accidents that could potentially results in injuries or losses.[6] However, these injuries cannot be fully mitigated due to some factors affecting them, such as ways of thinking and behaviour.

The occupational health and safety factors of MSMEs need to be formulated in detail. One way to do this is by studying practices in both developing and developed countries. Therefore, this study aims to analyze factors related to occupational health and safety management systems that can be formulated and developed in the MSME sector.

Methods

This systematic review is an exploratory study which aims to describe and analyze previous findings concerning pivotal factors in the implementation of OHSMS in MSMEs. This study was conducted in several steps, which consists of literature search; literature selection; evidence quality appraisal; evidence extraction and synthesis of the higher quality evidence.

In terms of the literature search, several online databases were selected as our literature sources. Google scholar, Science Direct, SpringerLink, JStor, Proquest, Taylor and Francis; as well as hand searching from various local journals; books and e-books which can be fully accessed through the Library of Universitas Indonesia were chosen. Our search strategy used a combination of two keywords that refer to the population and exposure variables in the PROSPERO (Prospective Register of Systematic Reviews) approach by using the "AND" strategy. Those keywords were defined as below:

Population: Micro, Small and medium enterprises; OR, MSMEs; OR Small businesses; OR Informal Sector; OR Small Firms; AND

Peer-review under responsibility of the scientific committee of the 3rd International Nursing, Health Science Students & Health Care Professionals Conference. Full-text and the content of it is under responsibility of authors of the article.

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https://doi.org/10.1016/j.gaceta.2021.10.050

	RISK OF BIAS ASSESSMENT QUESTIONS									
	Section A							Section B		Section C
	1	2	3	4	5	6	7	8	9	10
Paper 1										
Paper 2										
Paper 3										

Fig. 1. Risk bias assessment checklist.
Note:
√: Yes
?: Can't tell
×: No
Question 1: Was there a clear statement of the aims of the research?
Question 2: Is a qualitative methodology appropriate?
Question 3: Was the research design appropriate to address the aims of the research?
Question 4: Was the recruitment strategy appropriate to the aims of the research?
Question 5: Was the data collected in a way that addressed the research issue?
Question 6: Has the relationship between researcher and participants been adequately considered?
Question 7: Have ethical issues been taken into consideration?
Question 8: Was the data analysis sufficiently rigorous?
Question 9: Is there a clear statement of findings?
Question 10: How valuable is the research?

Exposure: Occupational health and Safety Management System; OR OHS-MS; OR Occupational Safety Management; Occupational Health Management

Each literature goes through a selection stage with the following conditions: first, the inclusion criteria are that the literature has to be written in either English or Bahasa Indonesia; second, the literature must be published between the year 2000 and 2020; and third, the literature must be published as a research article, literature review, research report, article review, or peer-reviewed paper. The exclusion criteria include newspapers, opinions, news from print and digital media, news, editorials, conference info, case reports, and conference articles. In the next selection stage, the literature must go through the title review selection stage, then abstract and full text review for evidence quality appraisal.

A checklist developed by the Critical Appraisal Skill Programme (CASP) (Fig. 1) for risk of bias assessment was used for the evidence quality appraisal. The checklist consists of 10 questions to investigate the three main issues of a research paper systematically, which are: the validity of the study results, the study results itself and the usefulness of the evidence locally. Only good and moderate quality evidence were included in this study.

Result

From the Google Scholar, Science Direct, SpringerLink, JStor and Proquest databases and additional 45 books, e-books and local journals; a total of 1,708,465 online books and local articles as the initial number of studies were found. The subsequent phase of the study was selection from the databases based on year and language, which resulted in 225,213 articles. This selection was narrowed down to 147 articles which were highly relevant based on the title and research questions. From 147 papers, 23 studies that were found duplicated, leaving 124 articles that were proceeded to the eligibility evaluation.

In the first stage of eligibility evaluation, 40 articles were excluded after screening the accessibility, leaving 84 articles. From these 84 papers, 71 were chosen based on the consistency between the research objectives, methods, and questions. Next, we left out 21 articles that did not correspond to the criteria. Subsequently, a full text review of the 50 articles was conducted to understand the objective and content of the papers (Fig. 2).

Finally, after the careful and thorough review process, 37 papers, books, online books and local articles were selected which were of sufficiently qualified and with a low level of bias (Fig. 3). The rejected articles demonstrated less or no relevance and did not document factors related to the implementation of occupational health and safety in MSMEs.

The following table presents the results of data extraction from 37 publications that were included in this study (Fig. 4

From the data extraction, we classified the pivotal factors for OSH implementation MSMEs into three downstream categories, middle stream, and upstream. Downstream factors are classified into several following categories which are awareness on regulation, the involvement of senior management, quality of OSHMS commitment towards safety and health, intervention programme, social relation at work, risk management and risk assessment, OSH structure and policy, knowledge and information, OSH training, technology and communication, human and economic resources, reward, worker involvement, interest, inspection, competition, planning and internal control (Fig. 5). Middle stream factor includes the support from third parties. Upstream factors refer to the support from government.

Discussion

As can be found in other studies, implementation of OHSMS at MSMEs can be challenging due to perception that OSH risk at MSMEs are low,[7,8] short term benefits are not clear and do not outweigh the invested cost[9] which lead to lack of interest and motivation in OSH implementation.[10–12] This study aimed to identify pivotal factors in promoting OSH implementation at MSMEs through a systematic literature review.

After the selection and evaluation process, 37 literatures were obtained for this study. The findings from those studies were extracted and synthesized to describe the most important variables in promoting the implementation of OSH at MSMEs. In general, there are 3 inter-dependent parties which all contribute to this common goal, specifically MSME employers and employees, the government and third parties (consultants, associations, unions, etc.). Numerous promoting factors were identified and based on the designated party, these factors were classified as downstream, middle stream and upstream factors. Downstream factors are those which need to be established at the MSMEs, middle stream factors are those which need to be present at third parties and upstream factors are at the government level.

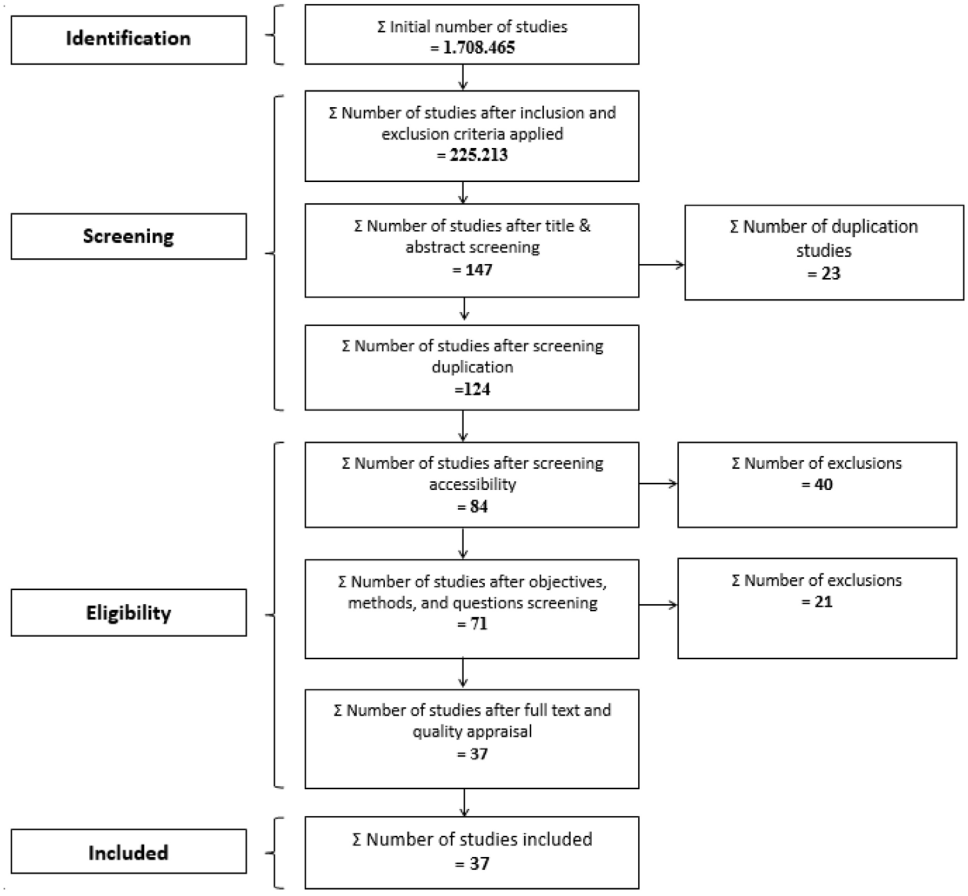

Fig. 2. PRISMA flow chart diagram.

No	Database	Σ Initial number of studies	Σ Number of studies after inclusion and exclusion criteria applied	Σ Number of studies after title & abstract screening	Σ Number of studies after screening duplication	Σ Number of studies after screening accessibility	Σ Number of studies after objectives, methods, and questions screening	Σ Number of studies after full text and quality appraisal
1	Taylor & Francis	287.866	8.534	10	124	7	4	4
2	JSTOR	147.991	3.624	0		0	0	0
3	Google Scholar	127.000	19.700	44		34	33	27
4	Springer Link	392.283	10.784	5		4	1	1
5	ProQuest	435.729	23.213	4		3	1	0
6	Science Direct	317.551	159.347	73		25	21	4
7	Book, Jurnal Lokal, E-Journal	45	11	11		11	11	1
		1.708.465	**225.213**	**147**	**124**	**84**	**71**	**37**

Fig. 3. Study selection results.

Downstream factors

According to the extracted data, there are 19 factors which need to be established at the enterprise level. The top six factors which are most commonly deemed as important for OSH implementation are OSH training; Commitment, Quality of OHSMS, Resources, Risk assessment and management; Communication.

- OSH training aims to improve the level of knowledge and awareness on OSH for both the employee and employer. P33 found that

No.	Author(s)	Title	Country	Study Design	Unit of Observation	Findings
P1	Vassie, Tomàs and Oliver (2000)	Health and Safety Management in UK and Spanish SMEs: A Comparative Study	UK & Spain	Survey Study	945 SMEs	(1) Awareness of OSH regulations can encourage the implementation and improvement of OSH in the workplace; (2) The involvement of managers is an important key in implementing OSH, because managers' decisions can influence critical actions related to OSH; and (3) A quality OSH management system can improve the implementation of OSH in the workplace.
P2	Stamou (2003)	Integrated Management Systems in Small Medium-Sized Enterprises: Theory and Practice	Anglia	Survey Study	40SMEs	Driving factors for the implementation of *Integrated Management Systems* (IMS) which contains *the Occupational Health and Safety Management Systems* (OHSMS) is the beneficial aspects, which meet the regulations, improve the image, cost savings, increased profits, avoid duplication of systems, ease of documentation, reduce waste, and reduce damage and loss of product. Meanwhile, the barriers are lack of awareness, not benefiting from the implementation of IMS, economic limitations, lack of time, lack of human resources, and lack of information.
P3	Hasle and Limborg (2006)	A Review of the Literature on Preventive Occupational Health and Safety Activities in Small Enterprises	Denmark	Literature Review	288 Literature	The implementation of the OSH management system in MSMEs must be low cost, but still effective. Strategies that need to be developed start from understanding the risks in MSMEs, understandingbusiness characteristics, developing internal OSH activities, providing OSH tools and methods specific to MSMEs, and involvement of third parties.
P4	Tangkittip aporn and Tangkittip aporn (2006)	Evidence-based investigation of safety management competency, occupational risks and physical injuries in the Thai informal sector	Thailand	Survey Study	1.260 SMEs	High commitment is needed to implement safety and health management in the workplace. Hopefully the existence of the Manpower Law will be able to increase company awareness of the importance of implementing OHS management.
P5	Fernández -muñiz, Montes-peón and Vázquez-ordás (2009)	Relation Between Occupational Safety Management and Firm Performance	Spain	455 SMEs	Empirical Study	Safety Management Systems are influenced by policies, incentives or economics, training, communication, and planning and control.

Fig. 4. Data extraction.

P7	Kheni *et al.* (2010)	Health and Safety Management in Developing Countries: A Studies of Construction SMEs in Ghana	Ghana	446 Respondents	Survey Study	K3 management practices carried out by MSMEs are highly correlated with company characteristics. However, there are several things that can hinder K3 management in MSMEs, such as policies, institutional and legal frameworks, and planning processes.
P8	Breslin *et al.* (2010)	Effectiveness of Health and Safety in Small Enterprises: A Systematic Review of Quantitative Evaluations of Interventions	Canada	Literature Review	5 Literature	There are two types of models that can be used in OHS prevention activities to maximize the OH&S management system, namely: (1) a combination of training and safety audits; and (2) a combination of engineering controls, training, safety audits, and motivation.
P9	Maceachen, Kosny and Marcia (2010)	Workplace Health Understandings and Processes in Small Busnesses: A Systematic Review of the Qualitative Literature	Canada	Literature Review	14 Literature	Social relations at work, risk management, OSH structure and policies, knowledge, and information are factors that can influence the implementation of OSH management in MSMEs.
P10	Arocena (2010)	An Empirical Analysis of the Effectiveness of Occupational Health and Safety Management Systems in SMEs	Spain	Case Study	193 SMEs	The effectiveness of the implementation of the OHS management system in MSMEs can be influenced by (1) the quality of industrial relations; (2) The presence of trade unions, (3) The reduced intensity of market price competition; (4) OHS training provided by public institutions; (5) Adequate technology; and (6) the nature of the work and duties of MSME workers.
P12	Chen *et al.* (2010)	Basic Occupational Health and Services In Baoan, China	China	Case Study	BOHS in SMEs Baoan, China	Organizational factors are needed to support occupational health services and management in MSMEs, for example involvement from the provincial, city and regional levels.
P13	Eakin and Maceachen (2010)	Health and Safety in Small Workplaces: Refocusing Upstream	Canada	Empirical Study	SMEs in Ontario and Quebec	The factors of legislation, policies, organizational processes, interventions and service practices are not in line with the characteristics of MSMEs. This becomes an obstacle in implementing OHS management in MSMEs.
P15	Agumba and Haupt (2011)	Critical Indicators for Measuring Health and Safety Performance Improvement in Small and Medium Construction	South Africa	Literature Review & The Delphi Approach	Journal articles, Conference proceedings & relevant health and safety	Effective communication both verbal and non-verbal can improve OHS performance in MSMEs and small-scale constructions. Managers need to ensure that information related to OHS is conveyed properly to workers.

Fig. 4. (*Continued*)

P16	Diugwu (2011)	Re-Strategizing for Effective Health and Safety Standards in Small and Medium-Sized Enterprises	UK	Survey Study	112 SMEs	Factors that can hinder the implementation of the OSH management system in MSMEs are lack of human and economic resources, lack of knowledge, very complex regulations, lack of management commitment, and lack of support from management for the implementation of OSH in MSMEs.
P18	Surienty (2012)	Management Practices and OSH Implementation in SMEs in Malaysia	Malaysia	Survey Study	35 SMEs	Factors that can influence the implementation of OSH in MSMEs are related to management commitment, legal role , demographic profile of MSMEs, and support from external parties.
P19	Agumba and Haupt (2012)	Identification of Health and Safety Performance Improvement Indicators for Small and Medium Construction Enterprises: A Delphi Consensus Study	South Africa	A Delphi Consesus Study	Health and safety experts, academics & industry practitioners	Factors that can affect OHS performance in the small-scale construction sector are the effectiveness of communication, the presence of OHS resources, clear OHS project planning, project supervision, OHS training, management involvement and commitment, OHS policies, and worker participation.
P24	Unnikrishnan *et al.* (2014)	Safety management Practices in Small and Medium Enterprises in India	India	Survey Study	30 SMEs	Factors that can hinder the implementation of safety management in MSMEs are OSH regulations, lack of knowledge, lack of training, and lack of commitment from management. Lebih di highlight ke bagian safe technology
P25	Seoke and Kamungoma-dada (2014)	Occupational Health and Safety Management Systems – A Review of Practices in Enterprises in Bostwana	Bostwana	*Cross-sectional explorat ory study*	414 SMEs	The results of the study show that OHSMS in small industries (MSMEs) is not widely implemented compared to large companies. Possible causes for this are financial problems and limited knowledge of implementing hazard control in the workplace.
P26	Bragatto, Ansaldi and Agnello (2015)	Small enterprises and major hazards: How to develop an appropriate safety management system	Italy	Experimental Study	Bow tie Model / Safety Net Model for OHSMS in SMEs	The implementation of OHS management in Italian MSMEs must be easy and adapted to the characteristics of MSMEs in Italy. The implementation of OHS management in MSMEs is based on existing regulations and standards. In addition, the use of easy technology can also help implement OHS management in MSMEs.

Fig. 4. (*Continued*)

P27	Masi *et al.* (2015)	Developing, Implementing and Evaluating OSH Interventions in SMEs: A Pilot, Exploratory Study	Italy	Exploratory Study	5 SMEs	The main drivers in the implementation of OSH in MSMEs are a positive management attitude towards OSH, a positive attitude towards OSH, availability of guidelines or information, availability of economic resources, communication, consultation and association with third parties. Meanwhile, the inhibiting factors are negative attitudes of management and workers towards OSH, ineffective regulation, lack of time, lack of training, lack of human and economic resources.
P28	Boustras *et al.* (2015)	Management of Health and Safety in Micro-Firms in Cyprus - Results from a Nationwide Survey	Cyprus	Survey Study	244 UMKM	Factors that affect OSH performance in the workplace are worker participation, availability of PPE, training, OSH policies, and risk assessment.
P29	Veng, Hasle and Christensen (2015)	Motivational Factors Influencing Small Construction and Auto Repair Enterprises to Participate in Occupational Health and Safety Programmes	Denmark	Qualitative Case Study	20 SMEs	This study shows that the driving factors in implementing OSH in MSMEs are influenced by: *sensemaking* which is influenced by the way the program is introduced; financial support to improve working conditions; and take into account the character of the business.
P30	Legg *et al.* (2015)	Managing Safety in Small and Medium Enterprises	New Zealand	Literature Review	7 Literature	The conceptual model that can be used to improve the implementation of OSH in MSMEs starts with regulatory standards that are built into intervention programs that cover three pillars: insight to improve compliance, introduction of standards by stakeholders, and dissemination of information for the small business sector.
P31	Yosia (2015)	Improving Safety Among Small Organisations in the Construction Industry: Key Barriers and Improvement Strategies	Australia	*Survey Study*	68 Responden	The results of this study indicate that the main factors that hinder the implementation of safety in the small-scale construction sector are external factors or third parties, so that small organizations do not have their own control. In addition, the factors of intense competition and lack of commitment are also obstacles.
P32	Masi and Cagno (2015)	Barriers to OHS Interventions in SMEs	Italy	Exploratory Study	58 SMEs	The most common obstacles to the implementation of OHS in MSMEs are regulatory issues, lack of human resources, and ineffective communication and information.

Fig. 4. (*Continued*)

P33	Terwoert, Verbist and Heussen (2016)	An Intervention Study on the Implementation of Control Banding in Controlling Exposure to Hazardous Chemicals in Small and Medium-sized Enterprises	Netherlands	Intervention Study	45 SMEs	Active training and coaching for MSMEs can improve the quality of MSMEs in carrying out risk management. Risk management is one of the important aspects in implementing OHS management in the workplace. In addition, management support and the involvement of third parties such as consultants can be useful for improving OHS in MSMEs.
P34	Nowrouzi *et al.* (2016)	Facilitators and Barriers to OHS in Small and Medium-Sized Enterprises: a Descriptive Exploratory Study in Ontario, Canada	Canada	*Cross section al study*	145 SMEs	One of the most important obstacles is the absence of external safety inspections, where MSMEs still receive little attention from OSH practitioners. The results also show that external safety inspection is statistically related to a *safe work environment* (SWE).
P35	Aduh, Enemuwe and Okojie (2016)	Occupational Health and Safety Management Systems in Small and Medium Enterprises in Asaba, Delta State, Nigeria	Nigeria	Cross section al stduy	62 SMEs	Organizational commitment and OSH policies are known as factors that can encourage the implementation of OHSMS in MSMEs.
P36	Bonafede *et al.* (2016)	OHS Management and Employers Perception: Differences by Firms Size in a Large Italian Company Survey	Italia	Survey Study	1010 Responden	Factors that can encourage the implementation of OHS in MSMEs are the existence of policies, structural considerations, economic resources, considerations of business characteristics, and the influence of company leaders.
P37	Gopang *et al.* (2017)	An Assessment of Occupational Health and Safety Measures and Performance of SMEs: An Empirical Investigation	Pakistan	Empiric al Study	SMEs Industry in Pakistan	The advantages of implementing OHS in MSMEs can increase safety, company reputation, organizational productivity, employee satisfaction levels, increase profits and sales. In addition, factors that encourage implementation include internal and external politics, *rewards* , and workforce training.
P38	Cañamares *et al.* (2017)	Occupational risk-prevention diagnosis: A study of construction SMEs in Spain	Spain	Survey Study	106 SMEs	The effectiveness of the implementation of OSH management in the small-scale construction sector needs to be encouraged by public administrators and state law enforcement agencies in order to establish an effective management system and provide trainings to workers.

Fig. 4. (*Continued*)

P39	Tremblay and Badri (2018b)	Assessment of Occupational Health and Safety Performance Evaluation Tools: State of the Art and Challenges for SMEs	Canada	Literature Review	43 Literature	There are 6 criteria that contribute to improving OHS in MSMEs, namely, management commitment, risk management, training, leadership, safety behavior , and accident prevention manageme nt and continuous improvement.
P40	Mei *et al.* (2018)	Effects of Organizational Safety on Employees' Proactivity Safety Behaviors and OHSMS in Chinese High-Risk Small Scale Enterprises	China	Survey Study	503 employee s from 105 SMEs	The results showed that POSS (*Perceived Organization Support for Safety*) and POSF (*Person- Organization Safety fit*) were positively related to improvements in safety management, safety procedures and identification of safety hazards through proactivity of safety behavior. Our findings provide a new perspective on organizational security to improve SMK3 for small-scale enterprises and expand the adoption of proactive safety behavior.
P41	Garnica and Barriga (2018)	Barriers to Occupational Health and Safety Management in Small Brazillian Enterprises	Brazil	Survey Study	Perspecti ves of owners/ managers , labour auditors, & OHS consultan ts	Based on the manager's point of view, managers tend to blame the government and employees for the difficulty of implementing OSH management, while from the auditor's point of view they tend to blame management and the lack of allocation of human resources. In addition, ineffective information and communication can also be a barrier to the implementation of OSH management.
P45	Micheli *et al.* (2019)	Barriers, Drivers and Impact of a Simplified Occupational Safety and Health Management System in Micro and Small Enterprises	Italy	Literatu re Review & Suryev	82 SMEs	Factors that can encourage the implementation of OHSMS in UMKM, namely: company knowledge about OHSMS, risk management, human resource allocation, and *electronic tools* that are easy to use by MSMEs.
P47	Jaroenroy and Chompunt h (2019)	An Alternative Integrated Occupational Health, Safety, and Environmental Management System for Small and Medium-Sized Enterprises (SMEs) in Thailand	Thailand	Qualita tive Study – Mengg unakan Literatu re Review dan Intervie ws with Experts	Literature Review and 14 OHS Experts for Semi-structure interview, 10 OHS experts for Focus Group Discussio n	For the successful implementation of the OHS management system in MSMEs, convincing communication about the benefits of implementation is the main thing. Reduction of documentation also needs to be considered to facilitate implementation. Furthermore, support from third parties such as finance and consultants can improve OHS performance in MSMEs. As well, government involvement is also needed to support the implementation of OHSMS in MSMEs such as providing

Fig. 4. (*Continued*)

P48	Ramos, Afonso and Rodrigues, (2020)	Integrated Management Systems as Key Facilitator of Occupational Health and Safety Risk Management: A Case Study in a Medium Sized Waste Management Firm	Portugal	Case Study	16 Responde n	The study shows that an increase in the recording of occupational accidents and worker involvement in risk management, along with increased OHS Management System (*Integrated Management Systems).*
P49	Rodrigues *et al.* (2020)	Occupational Health and Safety Management Practices in Micro and Small-Sized Enterprises: The Case of the Portuguese Waste Management Sector	Portugal	Survey Study	66 SMEs	The results of the study show that micro and small waste management companies have several obstacles in managing OHS, including the absence of organized prevention services, OSH policies, risk assessment, training and accident recording mechanisms, as well as low support and advisory services for several companies.

Fig. 4. (*Continued*)

	Downstream Factors																				
	Awareness on OSH regulation	The involvement of senior management	Quality of OSH MS	Commitment toward safety and health	Intervention program	Social relation at work	Risk management and Risk Assessment	OSH structure and policy	Knowledge and information	OSH training	Technology	Communication	Human and economic resources	Reward	Worker involvement	Interest	Inspection	Competition	Planning and internal control
P1	√	√	√																
P2			√																
P3			√																
P4				√															
P5				√						√		√							√
P7																			
P8					√														
P9						√	√	√	√				√						
P10				√						√	√								
P12	√																		
P13																			
P15												√							
P16		√		√					√				√						
P18				√						√				√					
P19		√		√				√		√		√	√		√				
P24	√												√			√			
P25																			
P26											√								
P27	√									√			√						
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P40							√												
P41			√									√							
P45																			
P49		√																	
	4	4	6	6	1	1	4	3	2	7	2	5	6	1	1	2	1	1	1

Fig. 5. Downstream factors at the enterprise level that need to be stablised to promote OSHMS at MSMEs (extracted from 37 literatures).

training and coaching where direct and face-to face interaction occurs are more effective, though other studies suggested online training instead.[12,13]

- Commitment could motivate the implementation of OSH in its presence or hinder it in its absence.[14,15] OSH policy or lack thereof can be a major indication of commitment.[16,17]
- The quality of OSHMS is another major factor in MSMEs. The OSHMS which are found in small businesses are usually formulated by third parties.[18] The most important thing when developing an OSHMS for a small business is to consider its various internal characteristics[19], including the risks associated with its line of work, while at the same time, it should be as simple and cost effective as possible.[20]

- Risk Assessment and Management affects the quality of the OSHMS[21] and safety performance of small businesses.[22] Hence, it is crucial to create tailored risk assessment tools which are suitable for the type of MSMEs.
- Communication, both verbal and non-verbal, inter-organization and intra-organization, is found to influence the OSH performance at MSMEs. Adequate communication between related parties e.g. government to company, employer to employee, etc. is essential to ensure effective flow of information.

Middle stream factors

The support from third parties (associations, trade unions, consultants) is hugely beneficial in promoting OSH implementation at MSMEs. A study from Arocena (2010) found that businesses not involved in any union are less likely to implement any OHS systems.[23] Consultation with third parties has also become a driving factor for OSH implementation at small businesses.[15,24] Trade unions and associations have become important drivers for OSH implementation, as well as sharing and harmonizing OSH practices.[9,25] Since third parties play an important role in supporting OSH at MSMEs, consultants should be competent and qualified on OSH.[18]

Upstream factors

The role of the government to encourage OSH implementation at MSMEs is vital. Due to the informal characteristics of MSMEs, simple, proactive and functioning OSH regulation for MSMEs need to be established.[14,25,26] Caparros, et al. (2020)[27] and Masi and Cagno (2015)[28] recommends guidance for compliance rather than bureaucratic and stringent regulations. A computational experimental study[29] showed that punishment strategies, formulation of OSH standards and supervision of service agencies are recommended interventions which can be adopted by government. The role of the local government in terms of regulation enforcement and training provision are also key factors in promoting OSH implementation at MSMEs.[30]

Model of OSHMS at MSMEs

The establishment of an integrated management system for OSH implementation in MSMEs was proposed. This system allows for more efficiency in terms of avoiding redundant similar procedures.[20] However, the certification for IMS implementation is opposed by small businesses due to its excessive capital requirement.[7,9] The adoption of IMS in Thailand MSMEs requires extensive support from the government and third parties, especially to communicate its benefits, organize OSH education and awareness sessions and financial assistance.[31]

In Bouan China, a model of Basic Occupational Health and Services (BOHS) has been successful and well accepted by society, employee, employers and government.[32] Involvement of the local government, including Bureau of Health, Finance, Industry, Labour, Human Resources, Administration of Work Safety, Social Security and trade union showed a significant improvement in the implementation of OSH programmes such as training and education, workers and workplace health surveillance, risk assessment and control, and inspection of occupational health. The cost from the BOHS was borne partly by the employer and partly by the government.

Conclusion

Various pivotal factors in promoting OSH implementation at MSMES were shown by literatures. Those factors are inter-related and can be seen as role of MSMEs actors (employer and employee); third party and government. Reinforcing those factors is proposed to be able to enhance the implementation of OSH-MS at MSMEs.

Conflicts of interest

The authors declare no conflict of interest.

Acknowledgments

This study was made possible through the support of the Ministry of Reearch and Higher education of Republic of Indonesia for funding this study through *Penelitian Dasar Unggulan Perguruan Tinggi* (PDUPT) Grant (Contract number: NKB-1581/UN2.R3.1/HKP.05.00/2019). The author would also like to thank Ms. Astuti and Ms. Amelia Anggarawati Putri who contributed to this study.

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