

# **Ability to Identify Occupational Health and Safety (OHS) Hazards in Small Sized Enterprises Workers in Cimanggis District, Depok City, West Java**

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## **Abstract**

Background: The high number of SMEs players in Depok has an impact on high employment. A large number of workers in SMEs that have not been maximized in applying safety and health aspects in the workplace has the risk of causing several problems such as minor injuries, ergonomic problems, old and insecure equipment, lack of workers' knowledge and poor work environment conditions. Objective: This study aims to assess the ability of workers to recognize OHS hazards in SMEs assisted by Cimanggis District Health Center, Depok City, West Java. Methods: This study used a cross-sectional design carried out on 36 SMEs assisted by Cimanggis Health Center, Depok City, West Java. In each of the selected SMEs, one worker was then interviewed using the ODK Collect application to assess characteristics, knowledge, attitudes, behavior, and assessment of the ability to recognize OHS hazards in SMEs. Results: The results of the study showed that only 41.7% of SMEs were able to recognize OHS hazards properly. In addition, the results show that there are more who have good knowledge (53%), poor attitudes (64%) and bad behavior (61%). Female workers, workers who have working hours of more than 8 hours per day, and SMEs workers with low occupational risks are found to be better in their ability to recognize OHS hazards. Conclusion: The ability to recognize OHS hazards for SMEs workers assisted by Cimanggis District, Depok, West Java is still very slight (under 50%). For this reason, it is necessary to intervene in OHS aspects in SMEs so that these hazards can be minimized

**Keywords: OHS, SMEs, Hazard, Workers**

## Introduction

Small and medium enterprises (SMEs) have an important and strategic role in national economic development (Sarwono, 2015). Based on data from the National Development Planning Agency, the Central Statistics Agency, and the United Nation Population Fund, predict the number of micros, small and medium enterprises (SMEs) in Indonesia in 2018 as many as 58.97 million people. With the high level of SMES actors, the impact on employment is also high. The large number of workers in SMEs has the risk of causing occupational health and safety (OHS) problems to workers. Minor injuries, ergonomic problems, old machine tools, lack of workers' knowledge and poor work environment conditions are OHS problems in SMEs (Manothum and Rukijkanpanich, 2010; Unnikrishnan *et al.*, 2015).

The results of research in Shiraz, Iran, only 26.3% of SMEs provided Personal Protective Equipment (PPE) and 0.4% of SMEs that were equipped with a good exhaust ventilation system. Odd posture is the most common bad working condition (81.5%) (Olsen *et al.*, 2010). In Thailand, there are 4.2 million workers who have suffered injuries or accidents. As many as 2.8 million workers were injured by sharp objects, 332,000 workers were injured due to machinery/equipment in the workplace and 65,000 workers were exposed to chemicals (Manothum and Rukijkanpanich, 2010). The ILO conducted a study on 6,000 SMEs Workers in Indonesia to look at monitoring levels of exposure to noise levels, dust exposure, ergonomic hazards, chemical hazards, vibration hazards, and heat stress. The results showed that many workers in Indonesian SMEs were exposed to high levels of noise (Eroglu S *et al.*, 2012).

In studies that have been conducted, it was found that SMES owners and managers had poor knowledge about the health effects of chemicals used and lack of knowledge about laws and OHS management. Annual health checks conducted in SMEs are still low and occupational health training is not even done at all (Olsen *et al.*, 2010).

The number of SMEs in Depok City is currently around 1,000 business people, with the highest number of SMEs being culinary and fashion (J. Marques, 2019). Depok City Health Office conducts health education covering individuals, families, groups, and communities (Dinkes Kota Depok, 2016). One form of health education conducted is forming a pilot SMES, but OHS aspects have never been trained. Looking at the various risks and dangers that can arise in SMEs in Cimanggis Subdistrict, which are pilot SMEs in Depok, the assessment of the ability of workers to recognize OHS hazards in SMEs needs to be done.

Work accidents in SMEs can be reduced by simple steps such as hazard assessment, good maintenance, training, and appropriate personal protective equipment (PPE) (Eroglu S *et al.*, 2012). Workers in SMEs prefer to use a participatory approach to address OHS problems. The participatory approach encourages stakeholder participation in decision-making processes and problem-solving through the use of participatory processes. The strength of the participatory approach consists of focusing on economic and achievable management goals, effective problem-solving methods, and community-based approaches. The participatory approach helps motivate workers to participate in the problem-solving process (Eroglu S *et al.*, 2012).

## Methods

This study used a cross-sectional design conducted at 36 SMEs assisted by Cimanggis Health Center, Depok City, West Java. 36 of these SMEs consisted of Tofu Factory, Tempe Factory, Kikil Factory, Welding Workshop, Bakery / Cake Shop, Gypsum craftsman and Meat Shop. In each SMEs one worker was chosen for the next interview using the ODK Collect application to measure knowledge, attitudes, behavior, and assessment of the ability to recognize the dangers of OHS in SMEs. The hazards measured in this study are noise, dust, light, temperature, vibration, electricity, handling, posture, and chemical hazards. Workers are asked to mention any hazards that may occur in the SMEs where they work, then they will be verified by trained officers whether or not the danger exists in the SMES. The ability to recognize hazards is said to be good if workers can mention a minimum of 80% of the danger according to the results of the verification of trained officers.

## Results

Table 1 shows the characteristics of the respondents studied. There were 36 SMEs studied consisting of 5 tofu factories, 1 meat shop, 2 gravel factories, 5 fermented soybean cake factories, 14 welding workshops, 1 wood craftsman, 6 food SMEs, 1 Gypsum craftsman, and 1 clothing convection. From each SMES one person was chosen as the respondent. The total respondents of 36 people consisted of 81% men and 19% of women aged 20-60 years. The age category is based on the median, below the median  $\leq 37$  and above the median  $\geq 38$ . The education level of the respondents is divided into 2 parts for the level of high school education and above is categorized as higher education and for under high school is categorized as low. There were 56% highly educated, 69% worked  $\leq 8$  hours per day and 81% worked above  $> 40$  hours/week. only 42% of respondents were able to recognize the dangers of OHS well. In addition, the results show that more people have good knowledge (53%), less good attitudes (64%) and bad behavior (61%).

**Table 1 Characteristics of Respondents from the study (n=36)**

Characteristics of Respondents	n	%
Gender		
Man	29	81%
Woman	7	19%
Age		
$\leq 37$	18	50%
$\geq 38$	18	50%
Education		
High	20	56%
Low	16	44%
Working hours (Daily)		
$\leq 8$ hours	25	69%
$> 8$ hours	11	31%
Working hours (Weekly)		
$\leq 40$ hours	29	81%
$> 40$ hours	7	19%
Working Period (in months)		
$<48$ months	15	42%
$>47$ months	21	58%
Job status		
Permanent	35	97%

Characteristics of Respondents	n	%
Not fixed	1	3%
Knowledge		
Not good	17	47%
Well	19	53%
Attitude		
Not good	23	64%
Well	13	36%
Behavior		
Not good	22	61%
Well	14	39%
Job Risk		
High	21	58%
Low	15	42%
Ability to Recognize Danger		
Able	15	42%
Less fortunate	21	58%
Types of SMEs		
Tofu factories	5	14%
Fermented soybean cake Factories	5	14%
Gravel factories	2	6%
Meat shop	1	3%
Cake Shop	6	17%
Gypsum craftsmen	1	3%
Convection clothing	1	3%
Wood craftsman	1	3%
Welding workshop	14	39%

Table 2. The results of the study show that female workers have a chance of 13.3 times better at recognizing hazards in the workplace compared to men. Workers who work less than 8 hours a day (not at risk) have a chance of 14.3 times better at recognizing hazards in the workplace than workers who work more than 8 hours a day. SMES workers with high occupational risk have a chance of 61.75 times better at recognizing hazards in the workplace compared to workers with low employment risks.

**Table 2. Characteristic Distribution of SMES Workers by age by recognizing hazards at work**

Characteristics of Workers	Not able to recognize hazards at work		Able to recognize hazards at work		<i>P-value</i>	<i>Odds Ratio (95% CI)</i>
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>		
Age category based on median						
Below the median ( $\leq 37$ year)	12	66,7	6	33,3	0,499 <sup>a</sup>	2,000 (0,520-7,691)
Above the median ( $\geq 38$ year)	9	50,0	9	50,0		
Gender						13,333
Women	1	14,3	6	85,7	0,013 <sup>b*</sup>	(1,393-127,577)
Man	20	69,0	9	31,0		3,667
Education						
Low	12	75,0	4	25,0	0,140 <sup>a</sup>	(0,874-15,384)
High	9	45,0	11	55,0		
Job status						
Not fixed	1	100,0	0	0,0	1,000 <sup>b</sup>	-
Permanent	20	57,1	15	42,9		

Characteristics of Workers	Not able to recognize hazards at work		Able to recognize hazards at work		<i>P-value</i>	<i>Odds Ratio (95% CI)</i>
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>		
Knowledge						0,410
Not good	8	47,1	9	52,9	0,337 <sup>b</sup>	(0,106-1,594)
Well	13	68,4	6	31,6		0,813
Attitude						
Not good	13	56,5	10	43,5	1,000 <sup>a</sup>	(0,203-3,257)
Well	8	61,5	5	38,5		1,750
Behavior						
Not good	14	63,6	8	36,4	0,644 <sup>a</sup>	(0,449-6,825)
Well	7	50,0	7	50,0		
Working period						
Below the median (≤47)	8	53,3	7	46,7	0,864 <sup>a</sup>	(0,184-2,695)
Above the median (≥48)	13	61,9	8	38,1		0,703
CO hour / day category 40 hours						
Risk (> 40 hours)	16	55,2	13	44,8	0,674 <sup>b</sup>	(0,082-2,966)
No risk (≤40 hours)	5	71,4	2	28,6		
CO hour / day category 8 hours						
Risk (> 8 hours)	19	76,0	6	24,0	0,002 <sup>b*</sup>	14,3
Not at risk (≤8 hours)	2	18,2	9	81,8		(2,4-83,3)
Job Risk						
High	19	90,5	2	9,5	0,0001 <sup>a*</sup>	61,750
Low	2	13,3	13	86,7		(7,691-495,791)

## Discussion

Of the 36 SMEs, two SMEs have begun to apply the OHS aspect, while many SMEs have been found to have not applied OHS aspects. Some obstacles to SMEs not applying the OHS aspect are the lack of interest from the management of SMEs, the main focus of SMEs is pursuing production and lack of knowledge of the dangers that cause injury or illness.

Based on the results of research on female workers in SMEs better in terms of recognizing hazards at work, this is because female workers are more tidy, disciplined and thorough. In other studies regarding the characteristics of SMES workers based on gender, it was found that women were better able to improve soft management skills and decision-making processes and enhance creativity and innovation (Woodhams and Lupton, 2009). While the results of research on workers who work under 8 hours/day are not pursued by production targets and have more adequate rest periods. The research illustrates the situation of SMES workers in Thailand, that Overtime is considered important for workers in SMEs because they want to have more income. Workers with work over 8 hours on average around 11 hours are a group of workers who do not have adequate rest periods that can cause accidents (Kongtip et al., 2008). This study shows that workers with high employment risks such as welding workshops are more careful in their work and some workers already use PPE. In a study in Uganda's Jinja city, it was found that 5 out of every 10 welders could implement OHS well (I. Oluwole et al., 2018).

The limitation of this study is that the number of SMEs studied was only 36 SMEs. The method of data collection is done by interview. With interviews, respondents are expected to better

understand the purpose of the questions and the data produced can describe the conditions of knowledge, attitudes, and behavior of OHS in SMEs. In addition to interviews, we also discussed the dangers of OHS in SMEs. These hazards include awkward postures, high-level noise exposure, dust, chemical hazards, electrical hazards, radiation, and psychological hazards. In addition to the dangers, we also explain PPE has an important role in protecting workers from work-related injuries and illnesses.

SMES workers show a positive attitude towards OHS issues in their workplaces. A positive attitude shows participatory workers to understand OHS further in their workplace. Behavior-based safety (BBS) theory of positive attitudes toward safe behavior can be encouraged by offering advice, inspiration, and guidance on how to eliminate risk behavior through safety awareness. A well-planned and implemented behavioral safety system such as BBS can instill awareness of the labor safety system and cause fewer accidents, incidents, accidents, and property damage. (Manothum and Rukijkanpanich, 2010; Unnikrishnan *et al.*, 2015).

After interviews and stimuli regarding the aspects of OHS caused a lot of awareness development about the importance of implementing OHS. In some SMEs, the application of the OHS aspects can be applied directly such as the cleanliness of the work environment, making rules for work and using PPE that are more appropriate. The data we have obtained is given again to SMEs to make recommendations to each SMES. In the future, we intend to return to the UKM studied to be followed up.

## Conclusion

The main results of this study are a description of the knowledge, attitudes,

and behavior of workers in the SMEs towards OHS which have not been good. In some SMEs simple repairs can be immediately carried out such as the cleanliness of the work environment, making rules and using PPE.

SMEs with the highest risk are welding workshops. OHS risk improvement for SMEs is a result of high working hours, excessive production, working environment conditions, and old technology. Minor injuries are an OHS problem that often occurs and the work does not appear to be a serious problem. Research on SMEs needs to be done to increase awareness of the importance of implementing OHS.

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