



## Social Support Role of Occupational Safety and Health Implementation in Informal Sector during COVID-19 Pandemic



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### Keywords

community health center;  
competent health;  
health educators;  
health implementation;  
health promotion;  
occupational health;

### Abstract

This study was conducted in a limestone processing site in Gunungkidul Regency, Yogyakarta, with One group pretest-posttest design. The study was initiated by OSH training for social supports done by competent health cadres. There were 8 social supports from fellow workers (peer support) and 29 social supports from family members (family support). These social supports assisted workers for 4 weeks. Data was collected by using three scales i.e. Scale of OSH knowledge (8 items, Coefficient Alpha Cronbach Reliability 0.800), attitude towards OSH scale (10 items, Reliability 0.917) and Practice of OSH Scale (10 items, Reliability 0.804). Data was collected before and after role assistance by social supports. Data analysis was done by the Wilcoxon sign rank test (alpha: 0.05). The results showed that there was an increase in the average knowledge of OSH from 5.83 to 6.93 ( $p < 0.05$ ), attitudes towards OSH from 26.23 to 30.76 ( $p < 0.05$ ), and OSH implementation from 25.00 to 28.83 ( $p < 0.05$ ). It was proven that the involvement of social supports from peer as well as family could increase knowledge, attitude and OSH practice of limestone processing workers. To increase the accuracy of the study result, it is advisable that the further study use a control group.

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## 1 Introduction

Someone's knowledge will influence his/her attitude. Attitude, subjective norms, and control toward behavior are interrelated components that will form a belief to behave (Icek, 1991), and so is the behavior of the workers toward OSH in their workplace. The number of informal sector workers is higher than those in the formal sector, internationally, it is 61% (International Labour Organization, 2013) while in Indonesia the number is 56,50% (BPS, 2020). Both of those sectors need implementation of occupational safety and health (OSH). The improvement of OSH can be achieved through the implementation of OSH training (Weinstock & Slatin, 2012; Bluff, 2019), implementation of law enforcement and inspections on a hazard, and fulfillment of worker safety and health (Andersen et al., 2019), commitment on safety, leadership and behavior monitoring (Aburumman et al., 2019). It was proven that the success of OSH in the formal sector can be realized through the application of several rules. In the informal sector jobs do not have a clear work system and structure as informal sector jobs, so different methods are needed to implement OSH. In another word, besides the implementation of rules, success in the implementation of OSH requires the role of various parties who can act as information providers, trainers, motivators, monitors, and active supervisors.

Limestone processing is one of the informal sectors in Indonesia which has hazard risk for its workers, risk measurement was done by using the Job Safety Analysis (JSA) method (Albrechtsen et al., 2019). As it is known the role of social relations can provide social influence, services, and information which will develop into health promotion behavior affecting the prevention of physical disease (Cohen et al., 2000). Family support acts as a provider of emotional and instrumental support that can increase work performance (Leung et al., 2020). Health educators in workgroups may increase work capacity, leadership, and community access toward OSH information and resources (Bush et al., 2014; Mahardika et al., 2021). Peer support has a role as a supporter in increasing positive motivation and attention, experience information, and friendship (Tse et al., 2017). Peer support shows effectiveness in helping people who have mental disorders with behavioral conditions that are connected, involved, and became active participants in recovery services (Gagne et al., 2018). Family and fellow workers are potential peer support for limestone processing workers. Someone's behavior was influenced by belief toward behavior and the belief was formed by attitude, subjective norms, and control perception. That attitude, subjective norms, and control toward behavior are interrelated components that will form a belief to behave (Icek, 1991) is in line with the Theory of Planned Behaviour (TPB) but so far there has not been any research involving the role of family support and peer support to improve OHS practices in this informal sector.

Jobs in the informal sector in limestone processing sites are carried out by groups of people with the closeness of living area as neighbors and family. They work for limestone company. Limestone obtained from the dismantling of limestone mountains will undergo a milling process using a machine that then is made a product in the form of lime powder. Pre-preliminary research by Sukismanto et al. (2021), conducted on limestone processing sites in Gunungkidul Regency found out that workers had limited knowledge of OSH and did not have attitudes and behaviors that might reduce the risk of disease and accidents in the workplace even though the company or job owners had provided personal protective equipment, the government had assisted the Occupational Health Effort Post (Pos Upaya Kesehatan Kerja), and community leaders had facilitated activities for health education by involving the active role of cadres to carry out health education.

The result of preliminary research also showed that the limited knowledge, attitude, and OSH behavior of the limestone processing workers had happened for a long time and even the COVID-19 pandemic situation did not change that although health promotion about the implementation of health protocol such as social distancing, avoiding crowds, and washing hands had been given. Since the majority of limestone processing

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workers lived closely one to another and even family, it was advisable that interventions for implementing OSH be done by involving health cadres close to the closest source of social support, i.e family and peers.

## 2 Materials and Methods

This is a quasi-experimental research with One Group Pretest Posttest design. The research location was in a community of limestone processing workers in the Occupational Health Effort Post which was under Community Health Center (Puskesmas) Ponjong 2 Gunungkidul regency. Occupational Health Effort Post supervises more or less 50 groups of limestone processing workers. There were 8 groups of workers/clusters chosen from Turi village. The cluster was chosen by using Cluster Random Sampling. There were 38 workers from 8 clusters, and in detail: there were 6 workers in cluster 1, 4 workers in cluster 2, 3 workers in cluster 3, 6 workers in cluster 4, 5 workers in cluster 5, 5 workers in cluster 6, 3 workers in cluster 7 and 6 workers in cluster 8. 1 worker from each cluster was chosen as peer support, that worker must meet the criteria: having good working performance, persuasive, good communication skill, and willing to do the task. 8 peer supports were chosen by the working group members assisted by health cadres, with 30 workers as treatment respondents. Each worker together with the health cadres chose a family support that meets the criteria: closest in family relation, having emotion and empathy, living together, and being willing to be family support. It was chosen 29 family supports.

Data was collected by using three scales i.e. i.e. Scale of OSH Knowledge (K) consisting of 8 items, Attitude of OSH Scale (A) consisting of 10 items questions, and Practice of OSH Scale (P) consisting of 10 items. These K, A, P instruments were developed based on the identification result of working risk factors done by certified OSH experts with the Job Safety Analysis (JSA) method. This KAP instrument was made by discussing with 4 experts with OSH, community health, and health promotion backgrounds. Afterward, the instrument was evaluated by using relevancy, clearance, simplicity, and ambiguity criteria, and 4 experts stated that the instrument was valid with a median score of 0.92 which is suitable with the one advised by Yaghmaei Farideh i.e more than 0.75 (Yaghmaie, 2003), content validity toward this KAP instrument was done by 2 experts in the field of OSH and Community Empowerment using a questionnaire developed by Yaghmaei, both stated that the instrument was valid with the score 0.81 from the first expert and 0.87 from the second. The result of Content Validity testing from 6 experts was a 0.89 average score. After the instrument was tested on 40 respondents, the reliability score was got by using Cronbach's Alfa test. The reliability score for Scale of OSH Knowledge was 0.800, Attitude of OSH Scale was 0.917 while Practice of OSH Scale Practice was 0.804. Bivariant data analysis was done to find out the difference between scores before and after treatment. The hypothesis test was done by using the Non-parametric Wilcoxon Sign Test ( $\alpha$ : 0.05). Below is the research scheme:

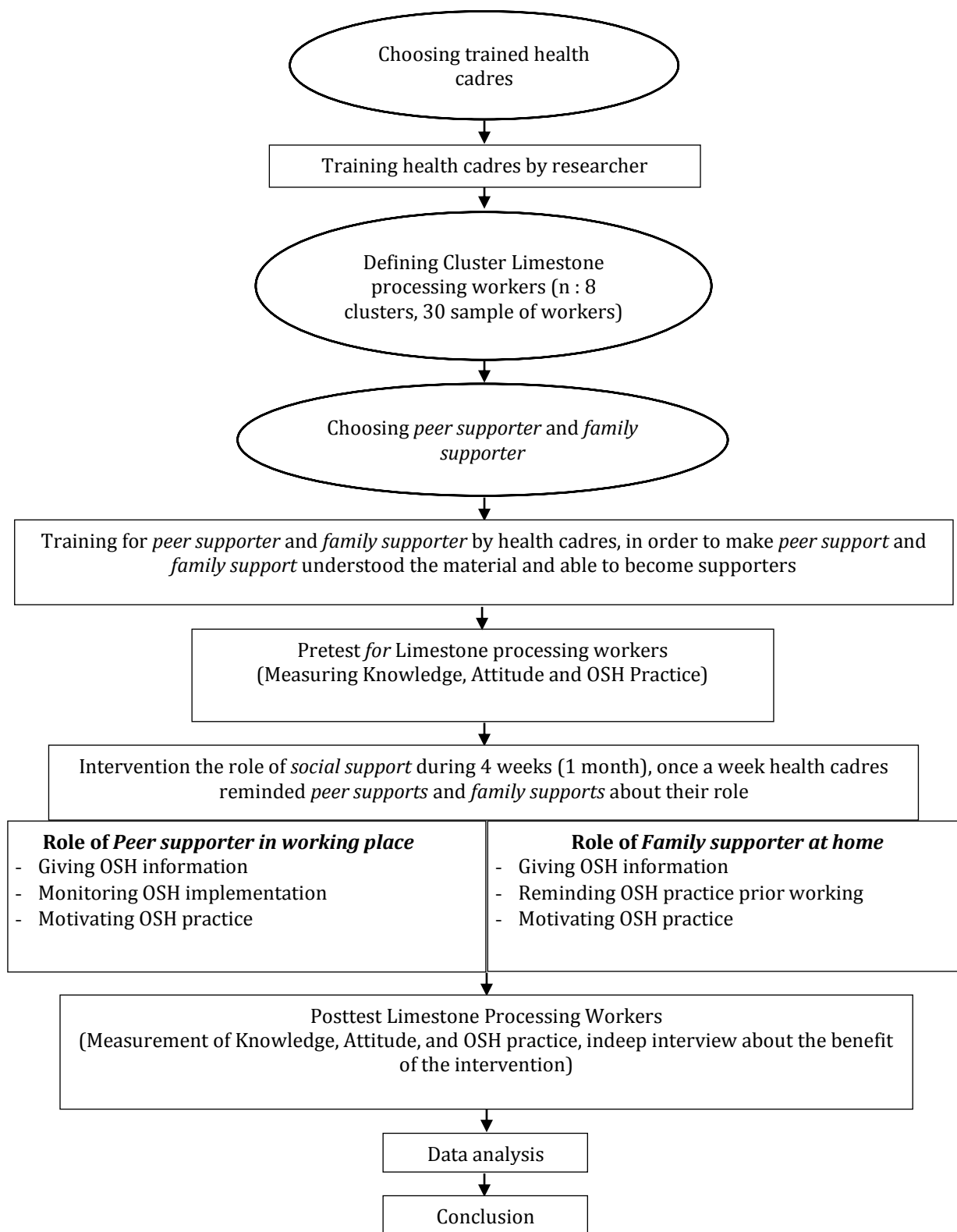


Figure 1. Research scheme

### 3 Results and Discussions

#### 3.1 Results

##### *Role of peer support and family support*

Before giving treatment to respondents, the researcher chose and trained health cadres so it was got 5 trained health cadres. Those trained cadres, together with each member of workgroups defined family supporters and peer supporters. The same trained cadres gave training for family supporters and peer supporters. Then, the research of the role of social supports was done by using Quasi Experiment with One group pretest-posttest design. Below is the picture of the Research design:



Figure 2 Research design

Before being given treatment of social support role (O), respondent's knowledge, attitude, and OSH practice were measured as a pretest, then they were given a treatment of social support role, i.e peer supporter and family supporter (X) by giving information, communication and motivation. After 1 month-treatment, respondent's knowledge, attitude, and OSH practice were measured as a posttest. Activities of researcher, health cadres, the role of peer support and family support as well as limestone processing workers were as follows:

Table 1  
The role of researcher, health cadres, social support, and respondent

Researcher	Health Cadres	<i>family support and peer support</i>	Limestone Processing Workers
1. Making pocketbooks containing OSH materials and the tasks of <i>family support</i> as well as <i>peer support</i>	1. Joining the training and understanding materials concerning OSH in Limestone Processing Workers.	1. Getting training OSH Limestone Processing Workers done by health cadres to be able to become supporters.	1. Getting assistance from <i>family support</i> as well as <i>peer support</i>
2. Explaining OSH materials to Health Cadres	2. Understanding the steps of research and the use of research instruments	2. During 1 month, every day does the tasks as :	2. A filling questionnaire consisting of questions about knowledge, attitude, and OSH practice twice, i.e before and after research.
3. Explaining the use of variable measurement instruments of knowledge, attitude, and OSH practice to health cadres	3. Giving training about OSH of Limestone Processing Workers to <i>family support</i> and <i>peer support</i>	a) <i>peer supports</i> : giving information, monitoring, and motivating the implementation of OSH in working place.	
4. Explaining to health cadres concerning its implementation during the research.	4. Monitoring and <i>once a week</i> reminding <i>family support</i> and <i>peer support about their role</i> .	b) <i>family supports</i> : giving information and motivation as well as reminding the implementation of OSH when the workers are at home.	
5. Receiving research the already-filled-instrument forms from health cadres	6. Collecting the data on knowledge, attitude, and OSH practice in Limestone Processing Workers.		

### *Social support characteristics*

Family support was chosen based on emotional closeness toward the workers' daily life. Peer support is the one working together in the workgroup who have good performance, good communication skills, and chosen by group members together with health cadres. The number of family supporters was 29 people and peer supporters was 8 people, there was 1 family support becoming a supporter for 2 limestone processing workers. Below is the characteristic of social support who played a big role in the research.

Table 2  
Characteristic of social support limestone processing workers in Gunungkidul Regency

Characteristic	Frequency	Percentage (%)
<i>Social Support</i>		
Family Support	29	78.4
Peer Support	8	21.6
Total	37	100
<i>Sex</i>		
Male	10	27
Female	27	73
Total	37	100
<i>Education</i>		
Uneducated	1	2.7
Elementary School Graduate	19	51.4
Junior High School Graduate	11	29.7
Senior High School Graduate	3	8.1
University Graduate	3	8.1
Total	37	100
<i>Relation with workers</i>		
Husband	1	2.7
Wife	26	70.3
Children	1	2.7
Parents	1	2.7
Work owner	8	21.6
Total	37	100
<i>Age</i>		
Mean	45.7	
Median	45	
Modus	41	
Minimum	22	
Maximum	63	
Range	41	

From table 2, characteristic of social support, 37 people are mostly female (73%), educational background mostly Elementary school graduate (54.1%), the relation between family support and workers is wife while peer support is work owner, the age of social support ranges from 22 to 63 years old.

### *Respondent characteristics*

Respondents in this research were workers who have a main activity to process limestone. The total respondents were 30 limestone processing workers. The characteristics can be seen in Table 3 as follows:

Table 3  
Characteristic of sex, age and working period of respondents

Characteristic	Frequency	Percentage (%)
<i>Sex</i>		
Male	24	80
Female	6	20
Total	30	100
<i>Education</i>		
Uneducated	3	10
Elementary School Graduate	15	50
Junior High School Graduate	10	33.3
Senior High School Graduate	2	6.7
Total	30	100
<i>Age (Year)</i>		
Mean	49.7	
Median	50	
Modus	41	
Minimum	29	
Maximum	72	
Range	43	
<i>Working Period (Year)</i>		
Mean	13.7	
Median	15.0	
Modus	20	
Minimum	2	
Maximum	24	
Range	22	

Table 3 shows that the workers are mostly men (80%), middle-lower educational background is the most (50% Elementary School Graduate and 10% do not graduate even from Elementary School), the age ranging from 29 until 72 years old, working periods also ranging from 2 until 24 years old.

Table 4  
Level of knowledge, attitude, and OSH practice of limestone processing workers before and after the role of family support and peer support

Characteristics	Min	Max	Mean	Range	SD
<i>OSH Knowledge</i>					
Before	5	6	5.83	1	0.38
After	6	8	6.93	2	0.58
<i>OSH Attitude</i>					
Before	24	30	26.23	6	1.36
After	26	37	30.76	11	2.82
<i>OSH Practice</i>					
Before	18	32	25.00	14	2.76
After	12	35	28.83	23	4.65

Table 4 showed the result of measurements of knowledge level, attitude, and practice-changing before and after social support assistance. Level of knowledge increased from a mean score of 5.83 to 6.93, attitude from 26.23 to 30.76, and practice from 25.00 to 28.83.



Table 5  
Result of data normality test by Saphiro Wilk ( $\alpha$  : 0.05)

Variable	T <sub>3</sub>	p
Knowledge Pretest	0.452	0.000
Attitude Pretest	0.561	0.000
Practice Pretest	0.865	0.001
Knowledge Posttest	0.750	0.000
Attitude Posttest	0.920	0.027
Practice Posttest	0.846	0.001

The result of the Data Normality Test by using Saphiro Wilk test showed that all variables were not normally distributed ( $p$ -Value<0.05). So the statistical test used to find out the different scores of pretest and posttest was Non-parametric test, i.e Wilcoxon sign rank test. The following is the result analysis:

Table 6  
6 Result of the statistical test by using Wilcoxon sign rank test, score before and after family, and peer support role intervention

Variable	Positive	Negative	Same	p
Knowledge Pretest-posttest	24	0	6	0.000
Attitude Pretest-posttest	28	0	2	0.000
Practice Pretest-Posttest	26	1	3	0.000

Result of the statistical test by using the Wilcoxon signed rank test showed that level of knowledge, attitude, and OSH practice after family and peer support role intervention had a significantly different scores between before and after an intervention. For the level of knowledge 24 out of 30 respondents showed positive changes, with 6 respondents remaining the same. For the attitude variable, 28 respondents were having increasing positive attitude and 2 respondents remained the same. For the OSH practice variable, 26 respondents showed positive behavior changing while 3 respondents remained the same and 1 respondent had decreasing score.

Besides using a questionnaire, evaluation was done quantitatively by in deep interview to know the benefit of family and peer support role as an effort to increase knowledge, attitude, and OSH practice. All respondents stated that attention and reminder from family and job owners to always wear the suitable personal protective devices and working attitudes suitable with ergonomic principles were useful. The following citations were taken from the interview:

*"..just knew that lifting limestone must be started by squatting instead of by bending our body, initially it was weird but because it was the right thing to do so I tried to do.."*

*"When I was about to go to grind limestone, I was reminded by my wife to put on a mask while working in order to be healthy.."*

*"..by looking at the book distributed, one could understand how to work healthily while grinding limestone .."*

From the increasing level of knowledge, attitude, and OSH practice by both qualitative and quantitative evaluations, it is known that the role of peer support and family support can become a method in promoting health for limestone processing workers.

### 3.2 Discussions

Limestone processing job is done by the group of society in Gunungkidul regency was an informal sector job. An informal sector worker has common characters such as irregular activity pattern of time, capital as well as income; Commonly unregulated by government rules; Capital, rules, and equipment as well as income was small and based on daily calculation; The place of work commonly unseparated with a place of living and not



permanent: Not necessarily need expertise nor special skill (Diallo, 2017; Taufiq & Dartanto, 2020). OSH implementation in informal sectors hasn't been given special attention so that work accidents, as well as diseases related to job, were considered to be something common by society. OSH implementation not only can decrease the number of diseases and work accidents but also can increase work productivity (Yi et al., 2011; Attamimi et al., 2020). OSH implementation was started by identifying hazard risk factors from working process, materials, equipment as well as the working environment by using the Job Safety Analysis (JSA) method with the following steps: 1) identifying JSA needs, 2) preparation and planning, 3) JSA implementation, 4) measurements and implementation in working sites, 5) conclusion of JSA implementation. The third step of JSA implementation was identifying the work process, identifying dangers in each process, identifying potency and consequence of a danger, identifying dangerous incidents, risk assessment, and risk lessening efforts (Albrechtsen et al., 2019). Actions to lessen, control and eliminate hazard risk factors were a big contribution to increasing health, that effort could be done by administrative policy, intervention, and the use of the personal protective devices (Che Huei et al., 2020). Based on the identification of hazard risk factors of limestone processing in Gunungkidul regency, it was found out that big hazard risk consisting of limestone dust exposure, noisy grinder, slipped, squeezed, scratched by limestone and work ergonomics. Actions or efforts that could be taken by the workers to lessen, control and eliminate hazard risk factors were to wear masks, head caps, eye protectors, ears protectors, close shoes, and ergonomics attitude in working.

Individual experience would drive someone is behaving, in this case practicing OSH, sub-system microsystem was the closest private environment. For the workers, especially informal sector workers, sub-system microsystem components were family, peers, and neighborhood community. For limestone processing workers, the role of social supports i.e family and peer support might influence their behavior in implementing OSH. The information gained from family, peers as well as other social communities may influence the worker's behavior (Bronfenbrenner, 1986), so the role of support could increase the belief of informal sector workers to practice OSH. Peer support and family as the worker's closest person was an environmental factor that can support the workers in increasing attitude, social norms, and behavior control perception factor. This is in line with the Theory Of Planned Behavior (TPB) in which behavior is influenced by belief toward the behavior and that belief is formed by attitude, subjective norms, and behavior control perception. Attitude, subjective norms, and control toward behavior are interrelated components, influence one another to form a belief to behave (Icek, 1991; Widana et al., 2021).

The health promotion model with the role of peer support and family support was like the role of OSH expert informal sectors such as identifying health problems, informing, educating, and empowering workers' society (Chang et al., 2012). The results of research showed that there was a change in increasing knowledge, attitude, as well as OSH practice, showed by the different score of pretest from post-test in which the mean score of knowledge increased from 5.83 to 6.93, the mean score of attitude from 26.23 to 28.76, while practicing from 25.00 to 28.83. Factors that influenced the attitude changing were Predisposing, Reinforcing, and Enabling (Green & Kreuter, 2005). The role of peer support and family support as a reinforcing factors for limestone processing workers could strengthen the workers in increasing knowledge, attitude, and OSH practice. Knowledge was gained by peer support and family support from training done by trained health cadres. Previously, the health cadres were given explanations by researchers and given a manual book about OSH for limestone processing workers.

The training was directly done by locally trained health cadres. The role of family support for limestone processing workers was mainly their wives or husbands, while peer support was mainly job owners who were also limestone processing workers. This condition was suitable with the norms of local society in which focusing attention to local culture structure such as the working site in the residential area existed in the social organization structure. A group of society was led by a leader (dukuh), supported by health cadres liveliness, showed the individual and society attitude to pay attention to health behavior (Moradhaseli et al., 2020), so that activities could be done well and could be accepted by workers as the member of local society.

Behavior and safety attitude was influenced by someone's knowledge factor of safety. In line with research done by Marquardt et al. (2020), that there was a significant change in the element of health culture after joining the training (Marquardt et al., 2020). After being given training by health cadres, the knowledge of peer supporters and family supporters increased so they were able to give correct information, to motivate, and monitor the implementation of OSH. The increasing knowledge of peer supporters and family supporter was known from the different scores on pretest and posttest which was increasing. The result of the statistical

test by using Wilcoxon sign rank test showed that there was a significant difference between the scores before and after the role of peer support and family support ( $p$ -Value  $< 0.05$ ). Health cadres involvement which was done to increase health service in society during the COVID-19 pandemic era (Akbar et al., 2021), was in line with training for peer support and family support given by trained health cadres considering the training was done in the COVID-19 pandemic situation and the awareness of preventing the spread of COVID-19 becoming the main consideration so that the role of peer support and family support was in line with this policy. Society has had an understanding of good attitude and behavior to prevent the spread of COVID-19 (Yanti et al., 2020; Ningsih et al., 2021). The role of peer support and family support to provide information, to give motivation, and to monitor the implementation in the field was suitable with the result of a study done by Aburumman et al. (2019), about the importance of safety, leadership style, and behavior monitoring which became the most important factors in the success of an intervention (Aburumman et al., 2019), and the lack of observation support might increase physical injury incidents 3.5 higher (Yanar et al., 2019), considering that limestone processing didn't have tied rule. The key success of OSH implementation besides commitment, inspection, and training was the existence of tied rule (Andersen et al., 2019).

The role of family support of limestone processing workers was mainly the wives or husbands of the workers, this showed that wives or husbands had the ability in giving emotional support as well as instrumentation for the workers so they could play the role positively in increasing knowledge, attitude and OSH practice (Leung et al., 2020; Velázquez et al., 2021). While the role of peer support for limestone processing workers was job owners as well as a peer in processing limestone. Peer support could give information about OSH, share experience, increase motivation and give positive attention to the workers and friendship in doing the job (Tse et al., 2017; Hedlund et al., 2016). Both roles showed that the form of social support was giving support function to the workers in the form of emotional support such as empathy, care, and love. Information support was in the form of advice, as well as instrumental support such as providing help and real service (Glanz et al., 2008).

#### *Research limitation*

The method in this research was conducted without any control system that could be used to handle should there was another outside factor of the research that might influence knowledge, attitude, and K3 practice of the workers.

## **4 Conclusion**

Social support in the form of family and peer supports might become a means of increasing knowledge, attitude, and OSH practice of limestone processing workers. The role of peer support was the job owners, while family supporters were the wives of the workers who informed and motivated the workers in applying K3. Based on the result, the research can be continued by comparing the role of family support to peer support to find out the biggest factor affecting the change of workers' attitudes.

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