

Analysis Of The Use Of Personal Protective Equipment (PPE) and Safety Behavior Of Work Accidents in Traditional Sandminers in Kali Blabak Village, Blitar District

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ARTICLE INFO

Article history:

Received: 10th April 2020

Revised: 22nd May 2020

Accepted: 12th June 2020

Keywords:

Personal Protective
Equipment
Work Accidents
Behavior

ABSTRACT

Occupational accidents often occur in workers, especially traditional workers who have not implemented the concept of occupational health and safety. This is evidenced by the incidence of work accidents that claimed lives in the traditional sand mining area of Kali Bladak village. The purpose of this study was to analyze the effect of the use of personal protective equipment (PPE) and work safety behavior on the incidence of work accidents in traditional sand miners in Kali Bladak Village, Blitar Regency. The design of this research is an observational quantitative study with a cross sectional approach with the focus of the research being directed to analyze the effect of the use of personal protective equipment (PPE) and work safety behavior on the incidence of work accidents in traditional sand miners in Kali Bladak Village, Blitar Regency with a population of 46 respondents and Samples of 41 respondents were taken using the Simple Random Sampling technique. The findings showed that most of the respondents used complete personal protective equipment as many as 22 respondents (53.7%). Nearly half of the respondents have adequate occupational safety behavior The findings showed that most of the respondents used complete personal protective equipment as many as 22 respondents (53.7%). Nearly half of the respondents have adequate occupational safety behavior The findings showed that most of the respondents used complete personal protective equipment as many as 22 respondents (53.7%). Nearly half of the respondents have adequate occupational safety behavior as many as 17 respondents (41.5%). Most of the respondents had experienced work accidents as many as 21 respondents (51.2%). The results of the study using the Logistic Regression Test showed that the p-value was 0.004 and 0.002 <0.05, so H0 was rejected and H1 was accepted, so it was concluded that there was an effect of the use of personal protective equipment (PPE) and work safety behavior on the incidence of work accidents in traditional sand miners in Kali Bladak Village, Blitar Regency. When working with sand miners that have a high risk of disability while working, they must use complete personal protective equipment (PPE) and behave in a safe manner so that work safety and security can be increased.

I. Introduction

Occupational accidents often occur in workers, especially traditional workers who have not implemented the concept of occupational health and safety. This is evidenced by the incidence of



DOI:

Website : <https://jgrph.org/>
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work accidents that claimed lives in the traditional sand mining area of Kali Bladak village. According to data provided by local community leaders, there were 20 work accidents in January-March in 2020, both minor and moderate accidents such as being bitten by an animal, scratched by a rock, hit by a digging tool and buried in material that resulted in fractures. This is a portrait of work accidents in traditional mining workers who are not yet exposed to knowledge related to the concept of occupational health and safety, causing the death of casualties. Occupational health and safety is an important factor that must be understood and applied by workers in order to maintain and increase work productivity. Work accidents are accidents that occur in the work environment and can occur due to unsafe working conditions or human errors (Dian Palupi Restuputri, 2015).

Work accidents include occupational diseases which are risks that must be faced by workers in carrying out work, including accidents that occur on the way from home to work, and returning home via normal or reasonable roads. Work accidents can be caused by 2 factors, namely unsafe action or human factors and unsafe conditions or work environment factors (Jamsostek, 2014).

Personal protective equipment (PPE) is basically a very important tool, because it is the last resort in an effort to protect workers after the engineering and administrative efforts of the company. This is intended to protect or reduce the level of work accidents that often occur (Hindratmo, 2015).

International Labor Organization (ILO) (2018) estimates that each year 2.78 million workers die due to workplace accidents or work-related diseases and more than 374 million people who are injured or injured or fall sick each year due to work-related accidents. According to data from BPSJ Ketenagakerjaan in 2018, data on the acquisition of work accidents were 157,313 cases. The Office of Manpower and Transmigration of East Java Province claims that there were 21,631 work accidents in 2017, this figure has increased by 200 accidents from the previous year. Based on a preliminary study conducted by researchers on March 8.3. In 2020, in the Kali Bladak sand mining area, the results showed that 7 out of 10 respondents interviewed claimed to have experienced work accidents such as being injured due to inadequate work equipment, being hit by rock and soil material, but this is considered a common thing for sand miners even though it has an impact. bruises to the head. Occupational accidents at the mine site occur frequently within 1-2 weeks with similar incidents, namely being hit by mining materials.

Based on the results of a preliminary study conducted by researchers on July 11, 2020 in Kali Bladak Village, Blitar Regency to 10 sand miners, it was found that 7 respondents (70%) very rarely used complete personal protective equipment even often without using personal protective equipment. Where this is due to the sand miners' inconvenience if they have to use too much personal protective equipment, the respondents think that this will cause the sand miners not to work optimally. Meanwhile, 3 respondents (30%) considered that using personal protective equipment was very important, especially boots, masks, gloves and head protection. These respondents often do this because they feel that it is very safe to wear complete personal protective equipment.

Based on the results of the work accident history survey, it was found that there were several incidents of work accidents in the form of an eye entering a foreign object like sand or gravel until the respondent's eye became irritated and became blurry in the quality of his vision, besides that there had also been a work accident in the form of a snake bite on the respondent's leg because miners are not careful and don't use boots. And there has also been a work accident in the form of an incision wound on the respondent's leg caused by being exposed to work equipment.

Every activity that involves human factors, machines and materials that go through the stages of the process has a hazard risk with different levels of risk that allow occupational accidents and diseases to occur. The risk of accidents and occupational diseases is caused by sources of danger resulting from work activities in the workplace. Labor is a company asset that is very important in the service process, so efforts need to be made so that the health status of the workforce is always in optimal condition. Generally in all workplaces there are sources of danger. Almost no workplace is completely free from sources of danger (Syukri, 2013).

Work environment hazards, both physical, biological and chemical, need to be controlled in such a way so as to create a working environment that is healthy, safe and comfortable. Various control methods can be carried out to overcome the hazards of the work environment, but technical control on the source of the hazard itself is considered to be the most effective and is the recommended first alternative, while the use of Personal Protective Equipment (PPE) is the last option (Endang, 2014).

One of the efforts in the framework of providing labor protection for Occupational Safety and Health (K3) in health services is by providing PPE. Giving PPE to workers is the last resort if engineering efforts and safe work practices have been maximally carried out (Retno, 2016).

The forms of protection provided are in addition to methods of elimination, substitution, engineering and administration, but also by providing Personal Protective Equipment (PPE) for workers, guests and practitioners. This is done because Quality Healthy Safety and Environmental (QHSE) is also aware of the high potential hazards that exist in the work environment (Indarto, 2014).

The phenomenon that occurs is that the use of PPE has not been fully implemented according to the procedure. Therefore, occupational safety must really be applied in a health service or other work place where workers do their work. It is not only the supervision of machines and other equipment but more importantly for the human being or the workforce. This is done because humans are the most important factor in a production process. Humans as workers who can cause work accidents that result in disability and death (Boedi, 2016)

Hindratmo (2015) states that Personal Protective Equipment (PPE) is basically a very important tool, because this tool is the last resort in an effort to protect workers after engineering and administrative efforts by the company. This is intended to protect or reduce the level of work accidents that often occur.

Based on the above conditions, the authors are interested in researching the analysis of the use of personal protective equipment (PPE) and work safety behavior against the incidence of work accidents in traditional sand miners in Kali Bladak Village, Blitar Regency.

II. Methods

In this study, researchers used a quantitative analytic design with an approach *Pre Experiment* by using a one-group pre-post test design, where the subject group was observed before the intervention was carried out, then observed again after the intervention. (Soekidjo, 2012). This study will analyze the effect of the use of personal protective equipment (PPE) and work safety behavior on the incidence of accidents at traditional sand miners in the village of Kali Bladak, Blitar Regency with a population of 46 respondents and a sample of 41 respondents who were taken using the simple random sampling technique.

III. Results and Discussion

Table 1. Results of Logistic Regression Analysis, analysis of the use of personal protective equipment (PPE) and work safety behavior on the incidence of work accidents in traditional sand miners in Kali Bladak Village, Blitar Regency which was carried out on September 14-26 2020 with 41 respondents

No.	Variable	B	Sig
1	PPE	32,712	0.004
2	Behavior	34,224	0.002
3	Constant	52,220	0.003

1. The effect of using PPE on the incidence of work accidents

Based on the results of the Logistic Regression analysis, it shows that the p-value is $0.004 < 0.05$, then H_0 is rejected and H_1 is accepted, so it can be concluded that there is an effect of the use of personal protective equipment (PPE) on the incidence of work accidents in traditional sand miners in Kali Bladak Village, Blitar Regency.

2. The influence of work safety behavior on the incidence of work accidents

Based on the results of the Logistic Regression analysis, it shows that the p-value is $0.002 < 0.05$, then H_0 is rejected and H_1 is accepted, so it can be concluded that there is an effect of work safety behavior on the incidence of work accidents in traditional sand miners in Kali Bladak Village, Blitar Regency.

1. Use of Personal Protective Equipment (PPE) in Traditional Sand Miners in Kali Bladak Village, Blitar Regency

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The results showed that most of the respondents used complete personal protective equipment as many as 22 respondents (53.7%). Meanwhile, 19 respondents (46.3%) used personal protective equipment incompletely.

Personal protective equipment (PPE) is a device that has the ability to protect someone whose function is to isolate part or all of the body from potential hazards in the workplace. In Raoda's (2015) research, the Health Action Process Approach (HAPA) model. In compliance with the SOP of traditional sea cucumber diving fishermen it is directly affected by the self-efficacy of sea cucumber maintenance and economic value. Indirectly, the compliance of traditional diving fishermen is influenced by knowledge of the standard operating procedures (SOP) for diving, risk perception, economic value of sea cucumbers and self-efficacy of duties.

Personal protective equipment (PPE) is basically a very important tool, because it is the last resort in an effort to protect workers after engineering and administrative efforts by the company. This is intended to protect and reduce the level of work accidents that often occur (Hindratmo, 2014).

Every activity that involves human factors, machines and materials that go through the stages of the process has a hazard risk with different levels of risk that allow occupational accidents and diseases to occur. The risk of accidents and occupational diseases is caused by sources of danger resulting from work activities in the workplace. Labor is a company asset that is very important in the service process, so efforts need to be made so that the health status of the workforce is always in optimal condition. Generally in all workplaces there are sources of danger. Almost no workplace is completely free from sources of danger (Syukri, 2013).

Work environment hazards, both physical, biological and chemical, need to be controlled in such a way so as to create a working environment that is healthy, safe and comfortable. Various control methods can be carried out to overcome the hazards of the work environment, but technical control on the source of the hazard itself is considered to be the most effective and is the recommended first alternative, while the use of Personal Protective Equipment (PPE) is the last option (Endang, 2014).

According to the researcher, the use of personal protective equipment on workers is very important, especially if the worker is doing his job as a sand miner where in his work the worker is dealing with sand and heavy equipment which if an accident can be fatal. Based on the results of the study, it was found that most respondents used complete personal protective equipment from head to toe. However, there are still many respondents who use personal protective equipment incompletely and even the PPE that is used is not suitable for use. This is due to the lack of knowledge of workers and also because the attitude of workers is still lacking in understanding the hazards of work.

2. Work Safety Behavior in Traditional Sand Miners in Kali Bladak Village, Blitar Regency

The results showed that almost half of the respondents had adequate occupational safety behavior as many as 17 respondents (41.5%). In addition, a number of 14 respondents (34.1%) had poor safety behavior. While a number of 10 respondents (24.4%) have a good category of safety behavior.

Work accidents can occur due to several factors, including environmental and human factors. Environmental factors related to equipment, policies, supervision, regulations and work procedures regarding the implementation of K3. Meanwhile, human factors are unsafe behavior or work habits (Suma'mur, 2010).

The use of personal protective equipment should be mandatory, but not used by workers. This is due to the lack of discipline and awareness of workers. Based on hazard findings in companies in Indonesia, 60% of workers have head injuries because they do not use safety helmets, 90% of workers have facial injuries because they do not use face protection, 77% of workers have foot injuries because they do not use safety shoes, and 66% eye injury workers because they do not use eye protective equipment (Jamsostek, 2011).

Research by Syaaf (2013) shows that factors related to the behavior of using PPE in informal welding are knowledge, training, attitudes, motivation, communication, availability of PPE, supervision, punishment and reward. Meanwhile, Wibowo (2015) states that factors that have a relationship with the behavior of using PPE are knowledge, supervision, and policy. As for Linggasari (2013), the factors are the availability of PPE, training and supervision.

According to researchers, wherever someone is associated with an unsafe environment, they must pay attention to the occurrence of work accidents by using self-protection tools when carrying out these activities. When workers do sand mining in a river, where there can be snakes or heavy

sharp objects that have the potential to cause work accidents, sand miners must have good safety behavior in order to be safe in carrying out their work. Based on the research results, it is found that there are still many insufficient safety behaviors.

3. Work Accidents at Traditional Sand Miners in Kali Bladak Village, Blitar Regency

The results showed that most of the respondents had experienced work accidents as many as 21 respondents (51.2%). Meanwhile, 20 respondents (48.8%) did not experience work accidents.

Occupational Health and Safety (K3) according to Ramli (2013) is a condition or factor that affects or can affect the health and safety of workers or other workers (including temporary workers and contractors), visitors, or everyone in the workplace.

Work accidents include occupational diseases which are risks that must be faced by workers in carrying out work, including accidents that occur on the way from home to work, and returning home via normal or reasonable roads. Work accidents can be caused by 2 factors, namely unsafe action or human factors and unsafe conditions or work environment factors (Jamsostek, 2014).

The results of the research by Sahrial Angkat (2013) also showed the influence of using PPE at work on the occurrence of work accidents, where 63.64% of industrial workers who became respondents without PPE had an accident. Hindratmo (2010) states that Personal Protective Equipment (PPE) is basically a very important tool, because this tool is the last resort in an effort to protect workers after engineering and administrative efforts by the company. This is intended to protect or reduce the level of work accidents that often occur.

According to researchers, the potential for work accidents in sand miners is that the body parts are exposed to work equipment such as shovels, in addition to the potential for sand to enter the sand miner's eyes, and there is also the risk of being bitten by snakes if they do not use complete personal protective equipment. Based on the results of the study, it was found that most respondents experienced work accidents where it was caused by the lack of behavior to maintain the safety of the work of the sand miners, besides that, indifference to health was another factor that caused work accidents to increase. And the most important thing is that the use of personal protective equipment is incomplete and unfit for use.

Based on the results of the cross tabulation, it was found that there were some respondents who used complete personal protective equipment but experienced work accidents where it was caused by technical errors from the respondent's co-workers, where the respondent's co-worker accidentally dredged sand and there was a stone thrown at the respondent. Whereas respondents who use personal protective equipment incompletely but do not experience work accidents where it is caused by the behavior that the respondent does while working is very careful to avoid mistakes that may be done by him or his partner.

4. The Effect of Using Personal Protective Equipment (PPE) and Work Safety Behavior on Work Accidents in Traditional Sand Miners in Kali Bladak Village, Blitar Regency

Based on the results of the Logistic Regression analysis, it shows that the p-value is $0.004 < 0.05$, then H_0 is rejected and H_1 is accepted, so it is concluded that there is an effect of the use of personal protective equipment (PPE) on the incidence of work accidents in traditional sand miners in Kali Bladak Village, Blitar Regency. And also in the behavioral variable, it is found that the p-value is $0.002 < 0.05$, so H_0 is rejected and H_1 is accepted, so it is concluded that there is an effect of work safety behavior on the incidence of work accidents in traditional sand miners in Kali Bladak Village, Blitar Regency.

One of the efforts in the framework of providing labor protection for Occupational Safety and Health (K3) in health services is by providing PPE. Giving PPE to workers is a last resort if engineering efforts and safe work practices have been maximally carried out (Retno, 2011).

The forms of protection provided are in addition to methods of elimination, substitution, engineering and administration, but also by providing Personal Protective Equipment (PPE) for workers, guests and practitioners. This is done because Quality Healthy Safety and Environmental (QHSE) is also aware of the high potential hazards that exist in the work environment (Indarto, 2014).

The phenomenon that occurs is that the use of PPE has not been fully implemented according to the procedure. Therefore, work safety must really be applied in a health service or other work place where workers do their work. It is not only the supervision of machines and other equipment but more

importantly for the human being or the workforce. This is done because humans are the most important factor in a production process. Humans as workers who can cause work accidents that result in disability and death (Boedi, 2011)

Hindratmo (2010) states that Personal Protective Equipment (PPE) is basically a very important tool, because this tool is the last resort in an effort to protect workers after engineering and administrative efforts by the company. This is intended to protect or reduce the level of work accidents that often occur.

According to researchers, the number of incidents is caused by a work process that has a high risk danger, plus the presence of body parts being exposed to work equipment such as a shovel, besides that there is also the potential for sand to enter the sand miner's eyes, and there is also the risk of being bitten by snakes if not using complete personal protective equipment. Most of the sand miners already wear Personal Protective Equipment (PPE), especially gloves, boots, hats and masks, but the PPE used is very inadequate because it still wears damaged PPE and lacks maintenance.

Based on the results of the cross tabulation, it was found that there were some respondents who used complete personal protective equipment but experienced work accidents where it was caused by technical errors from the respondent's co-workers, where the respondent's co-worker accidentally dredged sand and there was a stone thrown at the respondent. Whereas respondents who use personal protective equipment incompletely but do not experience work accidents where it is caused by the behavior that the respondent does while working is very careful to avoid mistakes that may be done by him or his partner.

IV. Conclusion

1. Most of the respondents used complete personal protective equipment as many as 22 respondents (53.7%).
2. Nearly half of the respondents have adequate occupational safety behavior as many as 17 respondents (41.5%).
3. Most of the respondents had experienced work accidents as many as 21 respondents (51.2%).
4. There is an effect of the use of personal protective equipment (PPE) and work safety behavior on the incidence of work accidents in traditional sand miners in Kali Bladak Village, Blitar Regency.

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