

INTRODUCTION OF OCCUPATIONAL SAFETY AND HEALTH (K3) PRINCIPLES IN BLACKSMITHS VILLAGE

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Abstract

Background: One of the more ancient occupations is blacksmithing, which involves risky and dangerous work in the unorganized sector. Blacksmithing's risks and hazards must be understood and managed in order to prevent workplace accidents and illnesses. **Objective:** Blacksmiths are to be introduced to occupational safety and health concepts through this exercise. **Methods:** Blacksmiths from Pamboborang Village in Majene Regency participated in this endeavor as partners. utilizing Personal Protective Equipment (PPE), which is broken down into three stages of activity—preparation, implementation, and evaluation—the stages of carrying out the activities are carried out in an approach through discussion, education/counseling, and practice utilizing PPE. There were 27 blacksmiths who took part in this activity. **Result:** Participants are given information on workplace hazards and risks and control measures that can be implemented. Participants were also given basic K3 information. Participants were also taught about the many types and benefits of personal protective equipment (PPE) and practiced using it. **Conclusion:** Community service activities in the form of an introduction to K3 principles in the blacksmith community are progressing well and according to the plan.

Keywords: Blacksmith, Occupational Safety And Health, Personal Protective Equipment

INTRODUCTION

Blacksmithing is the technique of making farming implements or other machinery out of iron as the raw material, which is then forged into a useful product. Agricultural tools and machineries have been employed in a variety of industries, including food crops, horticulture, plantations, and animal husbandry. The availability of agricultural tools and machinery is extremely beneficial to farmers, particularly in intensification areas, beginning with speeding soil preparation, pest control, harvesting, and threshing (Sodikin et al, 2016).

The blacksmith industry is considered traditional since it still employs human labor in its manufacturing process. These iron craftsmen, armed with improvised tools, can transform solid iron into a variety of work tools, thereby facilitating the community's job (Nurbarokah, 2019). In general, the blacksmith's tiny industry can make various agricultural implements such as sickles, knives, field forks, and hoes (Supriyanto, 2016). Forging iron is not without concerns, such as heat, noise, non-ergonomic working postures, vibration, flames, metal fumes, and dust

pollution from burning. (Prihany, 2022). The iron forging process begins by blowing the coals using a ubub or an air pump. The coals themselves are a source of heat, and the iron artisans will be directly exposed to the burning coals. (Rahmuniyati et al, 2016).

According to data from the International Labor Organization (ILO), 2.78 million employees die each year, with 2.4 million (86.3%) caused by occupational diseases and more than 380,000 (13.7%) due by work accidents. In reality, non-fatal work accidents occur about a thousand times more frequently than deadly work accidents (Prihany,2022). There are two variables that contribute to workplace accidents. First, accidents caused by human causes (unsafe actions) and accidents caused by environmental factors (unsafe conditions). (Tarwaka, 2017).

The human component is typically caused by negligence on the part of the workers/humans themselves, such as not following Standard Operating Procedures (SOP) when working, not wearing personal protection equipment, being exposed to fatigue, working while joking, and so on. Environmental factors include risky working circumstances, tools that are not used as intended, and incorrect workstation arrangement (Panjaitan et al, 2021).

Iron is made up of many different elements, including chromium (Cr), molybdenum (Mo), nickel (Ni), aluminum (Al), manganese (Mn), silica (Si), carbon (C), sulfur (S), phosphorus (P), and others. (Pease et al., 2016; Hofmann et al., 2016; Gobbae et al., 2017). When blacksmiths are exposed to these materials for an extended period of time, they can have a significant impact on their health. (Ria et al, 2019).

Metal craftsmen who work in the grinding and grinding sector are at high risk of being exposed to metal dust due to the source of the pollutant. However, other workers in the same job location who are near together may face the same risk. (Chen et al, 2012).

One thing that may be done to avoid or minimize work accidents at the forge is to introduce the principles of Occupational Safety and Health (K3). This is done primarily to safeguard the iron craftsmen and, of course, to provide comfort and security, which has the effect of improving the iron craftsmen's production. Other advantages of using OSH principles include lower healthcare expenses and increased job productivity and quality. (Warisaura et al., 2022).

IMPLEMENTATION METHOD

The activity partners in this program were blacksmiths from Pamboborang Village in Majene Regency. The steps of implementing activities are carried out in a strategy that includes discussion, education/counseling, and practice with Personal Protective Equipment (PPE). The following mechanisms will be used to carry out the activities:

1. Plan Stage

At this stage, activities include licensing, determining schedules, locations, and participation. Furthermore, discussions were organized in order to gather knowledge about the work and methods of blacksmiths.

2. Action Stage

- a. Education/counseling, which is done to provide education about how to operate safely and safely, as well as how to wear personal protective equipment (PPE).

- b. PPE practice and provision, carried out to get blacksmiths habituated to wearing PPE while working.

3. Evaluation Stage

Participants were evaluated at the end of the activity by distributing questionnaires. The goal is to assess the community service activities that will be performed.

This activity's implementation also includes the participation of the partners listed below:

Table 1 Partner's Activity in this program

| No. | Goal | Solution/ Used Method | Partner's Activity |
|-----|---|--|---|
| 1 | Increasing understanding of how to work safely and securely | 1. Counseling on how to work safely and securely 2. Direct Practice | 1. Availability of time to learn to understand OSH theory and practice 2. Provide practice location |
| 2 | Increasing understanding of using Personal Protective Equipment (PPE) | 1. Counseling on the use of PPE 2. Direct Practice | 1. Availability of time to learn to understand the theory and practice of using PPE 2. Provide practice location |
| 3 | The blacksmith's habit of using PPE while working | The practice of using PPE | 1. Availability of time to learn to understand the theory and practice of using PPE 2. Provide practice location |

RESULTS AND DISCUSSION

Community Service activities were carried out face-to-face through counseling on K3 principles and the practice of using PPE on Monday, 12 June 2023 in the Pamboborang Village Office Hall which was attended by 32 people including 27 blacksmiths. The details of the activities are as follows:

1. Plan Stage

At this preparatory stage, permits were obtained from the Head of Pamboboran Village to determine schedules, places, and participants. In addition, field observations were made at several blacksmith workshops. Based on the results of observations, it is known that there are around 30 groups of blacksmiths, each of which has 6-7 members. Where most of these blacksmiths are male.

2. Action Stage

Before carrying out this activity, the participants were given a pre-test questionnaire to find out the extent of their knowledge regarding K3 principles in the work of blacksmiths. The details of the implementation phase carried out several activities as follows:

a. Counseling on K3 principles

Counseling on OSH principles is given to increase understanding of how to work safely and securely. The counseling materials provided are related to the dangers and risks of blacksmith work. The hazards in question are physical, chemical, biological, ergonomic, and psychological hazards. In addition, participants were also given information related to

Occupational Safety and Health including the objectives, benefits and OSH programs launched by the Government. In addition, participants were also given material related to efforts to control the hazards and risks that could arise from blacksmith work.



Picture 1. Counselling K3 Principal

b. Counseling on using PPE

Counseling on the use of PPE was given to increase participants' understanding of the types of PPE and their use in work as blacksmiths. The types and benefits of the PPE that were explained to the participants included safety clothing, helmets, shoes, earplugs, earmuffs, goggles, shields, goggles, heat-resistant gloves, vibration gloves, and respirators.



Picture 2. Counseling on using PPE

c. Practice of using PPE

The practice of using PPE is carried out as an effort to get blacksmiths used to using PPE while working. The PPE used is in accordance with the type of PPE that was explained during counseling on the use of PPE. During practice, there were participants who volunteered to use all of the PPE while mentioning the names and benefits of the PPE used. After practicing the use of PPE, participants were given PPE in the form of gloves that can dampen vibrations from the equipment used.



Picture 3. The practice of using PPE



Picture 4. Giving PPE to the Blacksmith

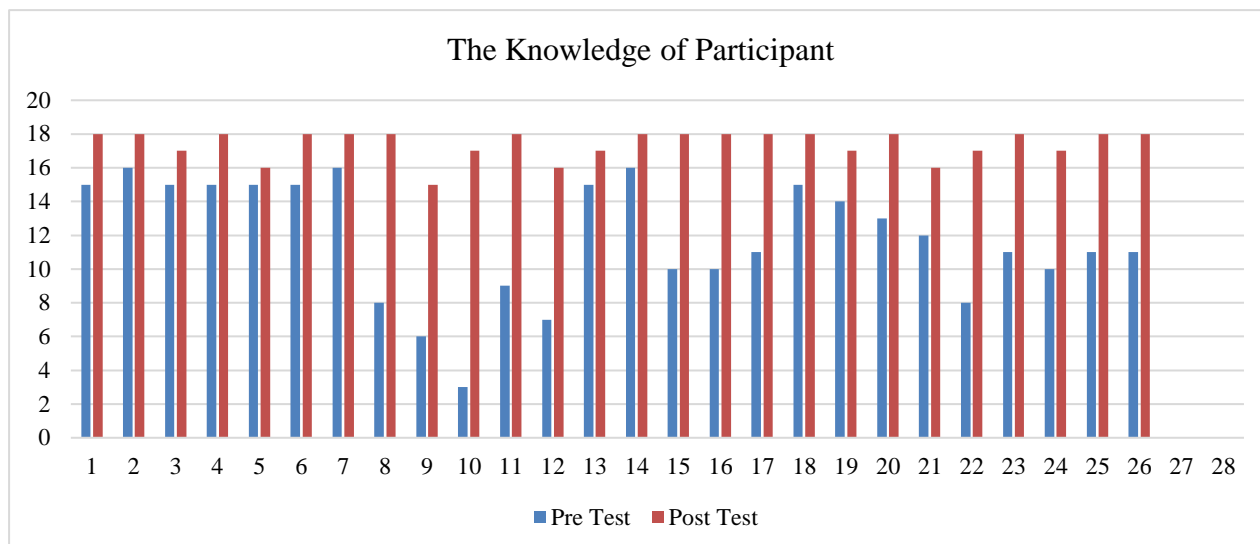
3. Evaluation Stage

The results of the evaluation show that the activities took place according to plan both in terms of time, place, materials provided, and also the response from the local government and activity participants.



Picture 5. Evaluation Activity Stage

In addition, an evaluation was carried out on increasing the participant's knowledge regarding the K3 principles of the blacksmith with the following results:



Picture 5. Increasing of Participant's Knowledge

Based on the results of the evaluation, it was found that most of the participants' knowledge increased after receiving counseling related to K3 principles. This of course has a positive effect on the participants.

CONCLUSION

Community service activities in the form of an introduction to K3 principles in the blacksmith village went well and according to plan. The activities carried out in the form of K3 counseling, counseling on the use of PPE, and the practice of using PPE received high enthusiasm from participants who work as blacksmiths.

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