

ORIGINAL ARTICLE

A CASE STUDY OF ON THE USAGE OF SAFETY HELMET AMONG AGRICULTURAL WORKERS IN PALM OIL PLANTATION

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ABSTRACT

Personal protective equipment or PPE is important to protect the user against safety or health risks at work. In oil palm plantation, safety helmet is one of the important PPE to protect against falling object or impact. The aim of this study was to gather data regarding the knowledge, attitude and practice on the usage of safety helmet among oil palm workers. A cross-sectional study was conducted among 178 workers in two oil palm plantation located in Melaka, Malaysia. A set of questionnaires was used to collect data on socio-demographic, safety information, knowledge, attitude and practice on the usage of safety helmet. Based on the descriptive analysis, results indicate that the workers lack in knowledge, attitude and practice of the safety helmet used. Thus, intervention program on usage of safety helmet should be carried out to increase safety awareness among the workers.

Keywords: safety helmet, harvester, oil palm

INTRODUCTION

Personal protective equipment also known as PPE can be defined as equipment that is used to protect the user against health or safety risks at work. It can include items such as safety helmets, gloves, eye protections, coveralls and safety shoes. Based on the Personal Protective Equipment at Work Regulations 1992, the regulations required that PPE is properly assessed before use to make sure it is fit for purposed, maintained and stored properly, provided with instructions on how to use it safely and used correctly by employees³.

According to Malaysian's Department of Occupational Safety and Health (DOSH), until December 2015, agriculture, forestry, logging and fishing sector is the second highest reported case of occupational accidents with 480 cases⁶. In agriculture sectors, especially in oil palm plantation, safety helmet is one of the important PPE for head, eye and neck protection. In 1994, Department of Labor had specified that, safety helmet need to be worn if there is a possibility of falling or flying object⁵.

In a case study reported by Manohar A and Shamsul B, a man sustained brachial plexus injury caused by a falling fruit bunch (FFB). The FFB weighed 10 to 20 kg and fell from a palm tree of a height of 5.5 meter². Thus, usage of PPE especially safety helmet in oil

palm plantation is a must to prevent occupational accidents during work. Accordingly, the objective of this study is to gather information on the knowledge, attitude and practice on the usage of safety helmet among oil palm workers.

METHODS

The study, which took place between 13th May to 15th May 2016 was based on a cross-sectional survey design. This study was conducted in two oil palm plantations located in Melaka. A set of questionnaires that comprise of five parts were distributed among 178 oil palm workers. The five parts were knowledge related information, attitude related information, practice related information, socio-demographic and safety related information.

Socio-demographic information was collected for age, nationality, salary, working position, duration of working and hazard exposure. Safety related information was obtained to study the prevalence of injury among oil palm harvester.

Knowledge on safety helmet were obtained by asking whether severity of injury can be reduced by safety helmet, function of safety helmet and the correct way of wearing safety helmet.

Attitude towards the usage of safety helmet were assessed by questioning about wearing safety helmet if the management provide it, comfortability of wearing safety helmet and obligation of wearing safety helmet in plantation.

Lastly, for practice related information, study participants were asked on the practical use of safety helmet. For instance, wearing the safety helmet at plantation, whether they remove safety helmet when it's hot, inspecting the safety helmet before use,

wearing chin-strap and advised friends to wear safety helmet.

The data was analysed by using Statistical Package for Social Sciences Software version 22.

RESULTS

Socio demographic characteristics of respondents

The total number of respondents for this study was 178, ranging from 19 to 60 years.

Table 1: Socio demographic characteristics of respondents

Variables	Frequency	%	Mean±SD
Age (years)			32.51±8.226
Age Range (years)			
<20	2	1.2	
21-30	76	45.8	
31-40	65	39.2	
>41	23	13.9	
Nationality			
Malaysian	22	12.4	
Non Malaysian	156	87.6	
Types of Nationality (Non Malaysian)			
Bangladeshi	3	1.9	
Indonesian	136	87.2	
Nepal	5	3.2	
Others	12	7.7	
Salary			1279.57±361.90
Working Position			
Harvester	118	66.3	
Collector	14	7.9	
Harvester and Collector	19	10.7	
Others	27	15.2	
Current work: Duration (years)			
<1 year	60	35.1	
1-5 years	86	50.3	
5-10 years	21	12.3	
> 10 years	4	2.3	
Hazard Exposure			
	42	23.6	
Chemicals	139	78.1	
Overheat	125	70.2	
Dust	48	27.0	
Loud noise	93	52.2	
Poisonous animal	87	48.9	
Falling fruit	45	25.3	
Fell from vehicles			
N=178			

Prevalence of injury among oil palm harvester

Table 2 shows the number of workers experienced injury in oil palm plantation and injury by body parts.

Table 2: Prevalence of injury among oil palm harvester

Variables	Frequency	%
Injuries at plantation		
Yes	61	34.4
No	117	65.7
Body Parts (Injured)		
Head	14	22.95
Eye	22	36.1
Shoulder	11	18.0
Neck	7	11.5
Backbone	14	23.0
Hand	34	55.7
Hips	8	13.1
Knee	7	11.5
Leg	44	72.1

N=178

Knowledge, Attitude and Practice on usage of safety helmet

Result from table 3 shows the knowledge, attitude and practice of the workers on usage of safety helmet.

Table 3: Knowledge, Attitude and Practice on usage of safety helmet

Criteria	Yes N(%)	No N(%)	Not sure N(%)
Knowledge			
Severity of injury cannot be reduced by safety helmet	131(73.6)	26(14.6)	21(11.8)
Training helps employees on how to use safety helmet properly	152(85.4)	11(6.2)	15(8.4)
Chin-strap safety not necessary to set position of safety helmet	122(68.5)	37(20.8)	19(10.7)
Do you know most safety helmet is adjustable	120(67.4)	28(15.7)	30(16.9)
Wearing safety helmet reverse side is allowed if there is 'reverse' symbol	32(18.0)	73(41.0)	73(41.0)
There are different types of helmets with different functions	89(50.0)	25(14.0)	64(36.0)
Head injuries can be fatal	153(86.0)	11(6.2)	14(7.9)
Different colours of safety helmet serve different reflection light	109(61.2)	23(12.9)	46(25.8)
Helmet with crack/hole can still be used for lighter work	58(32.6)	100(56.2)	20(11.2)
Compulsory to wear safety helmet during working hours	156(87.6)	17(9.6)	5(2.8)
Attitude			
I will wear safety helmet if the management provide	157(88.2)	12(6.7)	9(5.1)
I comfortably wear safety helmet	120(67.4)	43(24.2)	15(8.4)
I wear safety helmet to meet the needs of management	118(66.3)	47(26.4)	13(7.3)
Preparation of safety helmet should be done by the management	171(96.1)	1(0.6)	6(3.4)
The use of safety helmet is an obligation	163(91.6)	4(2.2)	11(6.2)
The helmet should be worn during their stay in plantation	144(80.9)	27(15.2)	7(3.9)
Failing to wear safety helmet should be fined	107(60.1)	43(24.2)	28(15.7)
Attractive design motivates me to wear it	132(74.2)	23(12.9)	23(12.9)

Practice

I wear safety helmet at plantation	103(57.9)	72(40.4)	3(1.7)
I take off safety helmet when it's hot	111(62.4)	62(34.8)	5(2.8)
I check the safety helmet before use	106(59.6)	71(39.9)	1(0.6)
I am practicing the use of safety helmet properly	107(60.1)	64(36.0)	7(3.9)
I wear a chin strap safety	96(53.9)	82(46.1)	0(0)
I tightened the chin strap if loose	93(52.2)	85(47.8)	0(0)
I adjust the size of the back strap to fit to wear	100(56.2)	75(42.1)	3(1.7)
I advised friends to wear safety helmet	89(50.0)	85(47.8)	4(2.2)

N=178

DISCUSSION

Socio demographic characteristics of respondents

In this study, majority of the oil palm workers were from Indonesia (87.2%) with average age of 32.51±8.226. The mean salary for the workers is RM 1279.57±361.90. Nearly two third of the respondents work as harvester (66.3%), followed by others (15.2%), harvester and collector (10.7%) and lastly, collector (7.9%). Half of the respondent (50.3%) has been working around 1-5 years in the oil palm plantation.

In oil palm plantation, the workers were exposed to many hazards, including chemicals, overheat, dust, loud noise, poisonous animal, falling fruit and falling from motorcycles. Among these hazards, more than half of the workers were exposed to overheat (78.1%) and dust (70.2%). Workers experienced overheat due to their working environment that exposed to direct sunlight. Outdoor operations conducted in hot environment, are likely to cause heat stress among workers (Ikuharu et al., 2006)⁷.

Prevalence of injury among oil palm harvester

Based on table 2, the prevalence of injury among oil palm harvester is 34.4%. The highest injury by body parts was leg (72.1%) followed by hand (55.7%), eye (36.1%), head and backbone (23.0%), shoulder (18.0%), hips (13.1%) and neck and knee (11.5%) respectively. Among the injury by body parts, injury involving eye, head and neck can be relate to the usage of safety helmet (Beth et al., 2008)⁸.

Knowledge, Attitude and Practice on usage of safety helmet

For knowledge section, significant proportions (87.6%) of workers knew that it is compulsory to wear safety helmet during the collection of palm oil. The majority (86.0%) of workers know head injuries can be fatal. Around 120 (67.4%) workers know that most safety helmet is adjustable. Two third (73.6%) of the workers said that severity of injury cannot be reduce by safety helmet. A number of 73 (41.0%) workers were not aware about wearing safety helmet reverse side is allowed if there is 'reverse' symbol. From the answer given by the respondents, it showed that workers have basic knowledge on safety helmet but lack in knowledge on the function of safety helmet. PPE should be used only after adequate training and instructions have been given to workers so they fully understand on the use of it (HSE, 2015, p.21).

Next is regarding the worker's attitude towards usage of safety helmet. Majority (88.2%) of workers will wear safety helmet if provided by the management. Most (91.6%) of the workers know that the use of safety helmet is compulsory. About two third (84.8%) of them agreed that wearing safety helmet during work make them feel safer. 118 (66.3%) of them stated that, they wearing safety helmet to meet the needs of management. 96.1% of the workers agreed that preparation of safety helmet should be done by the management. In order for the workers to wear safety helmet, management need to emphasize more on the importance of safety helmet as the workers depend on the management action. Health and Safety Executive (HSE, 2015, p.20) stated that every employer shall take all reasonable steps to ensure that any protective equipment provided to employee is properly used.

In terms of practices, a total of 103 (57.9%) workers wear safety helmet at plantation. Half of them practices the use of safety

helmet properly, checked the safety helmet before use, wear a chin-strap safety, tightened chin-strap when loose and adjust the size of back strap to fit to wear. However, 62.4% of the workers tend to remove their safety helmet during uncomfortably hot weather. This is due to experience of discomfort and heat stress while wearing the safety helmet (Abeysekera and Shahnava, 1988; Thomas et al., 1995)^{1,11}.

CONCLUSION

Based on this study, injuries involving head, eye and neck still occur in oil palm plantation. In addition, knowledge, attitude and practice on usage of safety helmet still need to be improved. Thus, intervention program on usage of safety helmet should be carried out to increase safety awareness among the workers.

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