UNIVERSITI PUTRA MALAYSIA

KNOWLEDGE AND PRACTICE OF SAFETY HELMET USAGE AMONG PALM OIL HARVESTERS IN SANDAKAN, SABAH

SITI NUR ATIKA YAP BINTI MUHAMMAD TAUFIK YAP

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BY

SITI NUR ATIKA YAP BINTI MUHAMMAD TAUFIK YAP

Thesis submitted in fulfilment of the requirement for the degree of Bachelor Science (Environmental and Occupational Health) from Faculty of Medicine and Health Sciences, Universiti Putra Malaysia

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ABSTRACT

KNOWLEDGE AND PRACTICE OF SAFETY HELMET USAGE AMONG PALM OIL HARVESTERS IN SANDAKAN, SABAH

SITI NUR ATIKA YAP BINTI MUHAMMAD TAUFIK YAP

Introduction: In agricultural, palm oil specifically has become the main sub-sector and create a lot of job opportunities among local and foreign workers. However, number of injuries reported in agricultural sector is the second highest after manufacturing. In palm oil plantation, basic knowledge on safety helmet were known among workers however intervention is needed to improve the practice of it. **Objective**: This study aims to determine the difference on knowledge and practice of safety helmet usage among palm oil harvesters before and after implementation of training. **Method**: A pretest-posttest study design is used to determine harvesters' knowledge and practice on safety helmet usage and injuries information were also collected. A total of 113 harvesters from three plantations in Sandakan are included in this study. Questionnaires were used to collect data on socio demographic background, occupational information, injuries information and knowledge, attitude and practice for pretest-posttest. A training session through tool box talk and video presentation on correct usage of safety helmet was given. Observation on field was carried out on practice item for post-test. **Result:** Data collected on injuries shows that 80.5% of harvesters has experienced injuries and among them, the body parts that injured the most are hands (42.9%) and legs (48.4%). The main cause of injuries was found out to be due to hit by palm fronds (70.3%). Descriptive analysis shows harvesters have high score for knowledge, attitude and practice before training session. There is a significance difference ($p<0.05$) on knowledge before and after implementation of training. However, there is no significance difference ($p>0.05$) on practice item between before and after training as the number of practices decreases during field observation. **Conclusion**: Overall, this study revealed that over half of the harvesters have high knowledge, attitude and practice level on safety helmet usage. Training session implemented is helpful in increasing harvesters' knowledge but not in practice wise. More data on plantations' related injuries are needed to improve preventive measure to reduce injuries in palm oil plantations.

Keywords: safety helmet, knowledge, attitude, practice, injuries

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ABSTRAK

PENGETAHUAN DAN TINGKAH LAKU PENGAIT KELAPA SAWIT TERHADAP PENGGUNAAN TOPI KESELAMATAN DI SANDAKAN, SABAH

SITI NUR ATIKA YAP BINTI MUHAMMAD TAUFIK YAP

Pengenalan: Di dalam sektor pertanian, kelapa sawit khususnya telah menjadi subsektor utama dan mewujudkan banyak peluang pekerjaan bagi pekerja tempatan dan asing. Walau bagaimanapun, bilangan kecederaan yang dilaporkan dalam sektor pertanian adalah kedua tertinggi selepas sektor pembuatan. Dalam ladang kelapa sawit, pengetahuan asas mengenai topi keselamatan diketahui di kalangan pekerja tetapi campur tangan diperlukan untuk memperbaiki amalan mereka. **Objektif**: Kajian ini bertujuan untuk menentukan perbezaan pengetahuan dan amalan penggunaan topi keselamatan dalam kalangan pengait kelapa sawit sebelum dan selepas pelaksanaan latihan. **Metodologi**: Kajian berbentuk "pretest-posttest" digunakan untuk menentukan pengetahuan dan amalan pengait mengenai penggunaan topi keledar keselamatan dan kajian keratan rentas digunakan untuk menentukan kelaziman kecederaan. Sejumlah 113 pengait dari tiga ladang di Sandakan dipilih bagi kajian ini. Soal selidik digunakan untuk mengumpul data mengenai latar belakang demografi sosio-ekonomi, maklumat pekerjaan, maklumat kecederaan dan pengetahuan, sikap dan amalan. Sesi latihan diberi melalui taklimat keselematan dan persembahan video mengenai penggunaan helmet keselamatan yang betul. Pemerhatian di lapangan dijalankan pada item latihan bagi ujian pasca. **Keputusan:** Data yang dikumpulkan dari kecederaan menunjukkan bahawa 80.5% pengait mengalami kecederaan dan di antara mereka, bahagian badan yang sering cedera adalah tangan (42.9%) dan kaki (48.4%). Punca utama kecederaan dilaporkan akibat terkena duri pelepah sawit (70.3%). Analisis deskriptif menunjukkan pengait mempunyai skor yang tinggi untuk pengetahuan, sikap dan amalan sebelum sesi latihan. Terdapat perbezaan signifikan ($p < 0.05$) tentang pengetahuan sebelum dan selepas pelaksanaan latihan. Walau bagaimanapun, tidak terdapat perbezaan yang signifikan ($p > 0.05$) pada item latihan antara sebelum dan selepas latihan kerana bilangan amalan berkurang semasa pemerhatian lapangan. **Kesimpulan**: Kajian ini menunjukkan bahawa lebih separuh daripada pengait mempunyai tahap pengetahuan, sikap dan amalan yang tinggi terhadap penggunaan topi keledar keselamatan. Sesi latihan yang dilaksanakan membantu dalam meningkatkan pengetahuan pengait tetapi tidak pada amalan mereka. Data mengenai kecederaan berkaitan perladangan masih diperlukan untuk memperbaiki langkah pencegahan yang sedia ada.

Kata kunci: topi keselamatan, pengetahuan, sikap, amalan, kecederaan

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LIST OF ABBREVIATIONS

BPB	Boustead Plantation Berhad
CIDB	Construction Industry Development Board
DOSH	Department of Occupational, Safety and Health
FFB	Fresh Fruit Bunches
HAVS	Hand-Arm Vibration Syndrome
ILO	International Labor Organization
KAP	Knowledge, Attitude and Practice
MPOB	Malaysian Palm Oil Board
MSD	Musculoskeletal Disorder
NIOSH	National Institute of Occupational, Safety and Health
OSHA	Occupational, Safety and Health Act
PPE	Personal Protective Equipment
SOCSO	Social Security Organization
WRHIs	Work-Related Hand Injuries
WRMSDs	Work-Related Musculoskeletal Disorders

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CHAPTER 1

INTRODUCTION

1.1 Research Background

Agricultural sector has been the backbone for Malaysia's economy for years long, despite the fact that service sector is now turning into the primary supporter in economy development overtaking manufacturing sector. In agreement with this, Malaysia has produced and export palm oil in enormous amount in satisfying the world request. For this, palm oil has become the main sub-sector in agricultural sector and has create a lot of job opportunities among local and foreign workers (Hussein et al., 2017). According to Malaysian Palm Oil Board (MPOB), the amount of palm oil exported was 25,370,294 and 23,294,140 tons in 2015 and 2016 which earned the country RM 60,169.49 million and RM 64,591.82 million respectively in those years. This shows palm oil industry is playing a crucial role in feeding and fuelling a developing worldwide population (MPOB, 2016)

According to Department of Occupational, Safety and Health (DOSH) Malaysia, it has been reported that the top three sector that recorded highest occupational accidents statistics are manufacturing sector (1691 cases), agriculture, forestry, logging and fishing sector (393 cases) and construction sector (177 cases).

The occupational accidents include non-permanent disability, permanent disability and fatal cases. International Labor Organization (ILO) defined occupational injury as the result from occupational accident that can end with personal damage, disease or fatal. Meanwhile, Bureau of Labor Statistics, the Occupational Safety and Health Administration stated the definition of occupational injury as work related issue due to any incident or hazards expose from work activity and environment.

Work activities in agricultural sector is commonly correlated with injuries and hazards from work environment. Most common causes would be such as incorrect working position, use of manual hand tools, overloads of work and lack of rest. It is said that the palm oil plantation workers are exposed to high risk of daily work task and is more severe among the fresh fruit brunch harvesters and loose fruits collectors (Nawi et al., 2016).

1.2 Problem Statement

Agriculture in Malaysia has generally created and expanded its income and maintaining our economy. However, the attention on protecting the welfare of laborers was as yet faulty. Some would put the fault on the business however some will denounce the representative. One of the strategies for controlling word related mischances is by utilizing Personal Protective Equipment (PPE) other than elimination, substitution, isolation, designing control and administration control. A study found out that PPE was easily accessible among farmers however their usage of these

equipment's was low. The primary reason was because their work distance from home was short and only short duration of exposure (Carpenter et al., 2002).

Based on the data from DOSH (2016) Malaysia, the number of injuries in agricultural sector is the second highest after manufacturing sector. From this, we can say that the rural divisions are not the sheltered segment as we thought and can't be belittled. Be that as it may, the reasons for injuries in this agricultural sector are still unclear. There are a few elements which add to a perilous demonstration, hazardous working condition, condition and furthermore the mental and physical of the specialist. Among those contributing elements, human blunders were habitually referred to as the essential reason for work related disaster and mishaps (Dekker, 2003).

In addition, there are few limitations in the current Malaysia's Social Security Organization (SOCSO) database such as the coverage of employee categories. Categories such as self-employed, foreign workers, government and domestic servants are excluded from the database. There is also no specification of causes of injuries stated in database as only one entry is allowed per injuries classification. The system also has the potential of under-announcing less serious injuries since the eager-ness to report is depends on the workers and employer (Ganesh & Krishnan, 2016). Therefore, it is crucial to conduct more studies on occupational injuries to collect more data on prevalence of injuries.

Previous study done by Zolkifli (2016) to assess harvester level of knowledge, attitude and practice (KAP) reported that the overall knowledge score of harvesters

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were 83.3% and 71.2% for attitude level. However for practice level, 47.7% of the respondents are in the category of fair and low score. As the workers already have the basic knowledge of safety helmet usage, intervention is needed to improve the practice of it. This is because workers tend to take off their safety helmet due to hot working condition and discomforts during work (Adnan et. al, 2016)

1.3 Study Justification

This study will provide information on the knowledge, attitude and practice on the safety helmet usage among palm oil harvesters. This will shows the knowledge level of harvester regarding the safety helmet function. Besides, this study will also assess the attitude of workers when using safety helmet because it is inconvenient to keep wearing the safety helmet during working as it will get hotter during the middle of the day (Zolkifli, 2016).

Furthermore, this study will determine the difference between knowledge and practice of the harvesters on safety helmet usage before and after implementation of training and toolbox session. This will help in identifying if the workers practiced the knowledge they gained to protect themselves from harm. An intervention study of KAP among school teachers in Nepal reported that the educational program was effective in improving the teachers' knowledge and attitude (Jha et al., 2013).

Data collected from this study will provide more information on prevalence and causes of injuries that occurs in palm oil plantations. It will also support any future

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studies to identify other type of injuries and bring out preventive measure to minimize injuries in palm oil plantation. Currently, SOCSO database system has been used for monitoring on claims or benefits of occupational related accidents and injuries. However, the system itself is not enough to serve the purpose of surveillance (Ganesh & Krishnan, 2016). This study will serve as additional information to support future studies related to palm oil plantation occupational injuries.

Also, this examination will enable numerous partners as the outcome to can be utilized by the expert, for example, the Safety and Health Department of the estate to turn out with related working guideline or standard of method for the specialists. Accordingly, the organization will profit in a way that it will boost their profitability and limit the word related mischance (Zolkifli, 2016).

1.4 Objectives

1.4.1 General Objective

The general objective of this study is to determine difference on knowledge and practice of safety helmet usage among palm oil harvesters before and after implementation of training.

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1.4.2 Specific Objectives

a. To determine the socio demographic background of the harvesters.

b. To determine the prevalence and causes of injuries among palm oil harvesters.

c. To determine the prevalence of injuries at each plantations.

d. To determine knowledge, attitude and practice of harvesters on safety helmet usage before implementation of training.

e. To determine knowledge, attitude and practice of harvesters on safety helmet usage before implementation of training at each plantation

f. To determine the difference on harvesters knowledge of safety helmet usage before and after implementation of training.

g. To determine the difference on harvesters practice of safety helmet usage before and after implementation of training.

1.5 Hypothesis

a. There is a significance difference between harvesters' knowledge on safety helmet usage before and after implementation of training.

b. There is a significance difference between harvesters' practice on safety helmet usage before and after implementation of training.

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1.6 Definition of Terms

1.6.1 Conceptual Definition

i. Safety Helmet

It is an individual defensive gear with a head protector look. It gives assurance from any potential head damage. Wellbeing head protector must have a hard outside shell and can contradict penetration by objects (US Department of Labor, 2010).

ii. Knowledge

Facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject ("Knowledge", 2017).

iii. Attitude

A settled way of thinking or feeling about something ("Attitude", 2017).

iv. Practice

The actual application or use of an idea, belief, or method, as opposed to theories relating to it. ("Practice", 2017).

v. Injury

An instance of being injured. The fact of being injured; harm or damage. ('Injury", 2017).

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1.6.2 Operational Definition

i. Safety Helmet

It is a hard hat utilized by the palm oil specialists in the estate to shield their head from any potential wounds (Zolkifli, 2016). Every person that exposed to falling or flying objects and blows on the head shall wear well-fitting industrial safety helmets. (Factory and Machinery Act, 1967)

ii. Knowledge

Knowledge is defined as justified true belief. If there are evidence for a belief, it can be said as the belief is known (Plato, 2015). Harvesters' knowledge on safety helmet will be assessed in this study to know their understanding on the usage of the protective equipment.

iii. Attitude

Attitude is a predisposition on how the workers respond towards the usage of safety helmet, either positively or negatively. Attitude will influence the workers choice of action and respond to works tasks, incentives and rewards.

iv. Practice

Practice is also describe as doing or perform something habitually or repeatedly. Workers supposedly practice the correct usage of safety helmet to help them perform their works in safe condition.

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v. Injury

Injuries also describe as illness, abnormal condition or disorder. It includes cases such as cut, fracture, sprain and amputation while illness include acute and chronic illness such as skin disease, respiratory disorder and poisoning. (Occupational Safety and Health Administration, 1970). Injuries among plantation workers may due to their unsafe act during working and ignorance on using personal protective equipment.

1.7 Conceptual Framework

According to OSHA US, an injury or illness is an abnormal condition or disorder. Injuries include cases such as, but not limited to, a cut, fracture, sprain, or amputation. Illnesses include both acute and chronic illnesses, such as, but not limited to, a skin disease, respiratory disorder, or poisoning (OSHA, 1970). From the Department of Occupational Safety and Health Malaysia, they stated from January till August 2016, the number of fatality cases among Agricultural sector was the third highest after construction and manufacturing sectors. Agriculture consists of many branches for example plantation of palm oil, coconut, and paddy (DOSH, 2016).

There are many causes of injuries or accidents that can happen in one palm oil plantation. According to DOSH Malaysia, the causes of accidents happening in palm oil plantation were use of equipment (81), machines (45), means of transport and lifting equipment (44) from the year 2007 to 2011 (Zolkifli, 2016). From this study, other causes of injuries had been taken into account such as falling of fruits,

mishandling of chisel and environmental factors. Environmental factors can range from a lot of other factors that can cause injury in palm oil plantation and not merely psychosocial factors such as fighting and wild animals attack.

Safety helmet is a personal protective equipment that gives protection from any potential head injury. Safety helmet must have a hard external shell and can oppose infiltration by objects. Additionally, it should ready to retain the stun of a blow, water resistant and moderate burning (US Department of Labor, 2010). This was the reason of necessity of safety helmet usage in palm oil plantation.

Knowledge, attitude and practice has been used to define one's understandings, way of being and way of behaviour or actions. In Malaysia, the score of knowledge, attitude and practice is moderately high among the harvesters (Zolkifli, 2016). This study will prove that there is significance difference between harvesters' knowledge and practice before and after training session.

Training for employee is important as it is one of the pillar to achieve successful work in any organization. This is because human resource is the backbone of any organization in the industry. Previous study reported that training development have significance impact towards workers performance, organizational commitment, services quality and job involvement. The study also concluded that there is a strong relationship between training design and development of employee's performance (Nassazi, 2013).

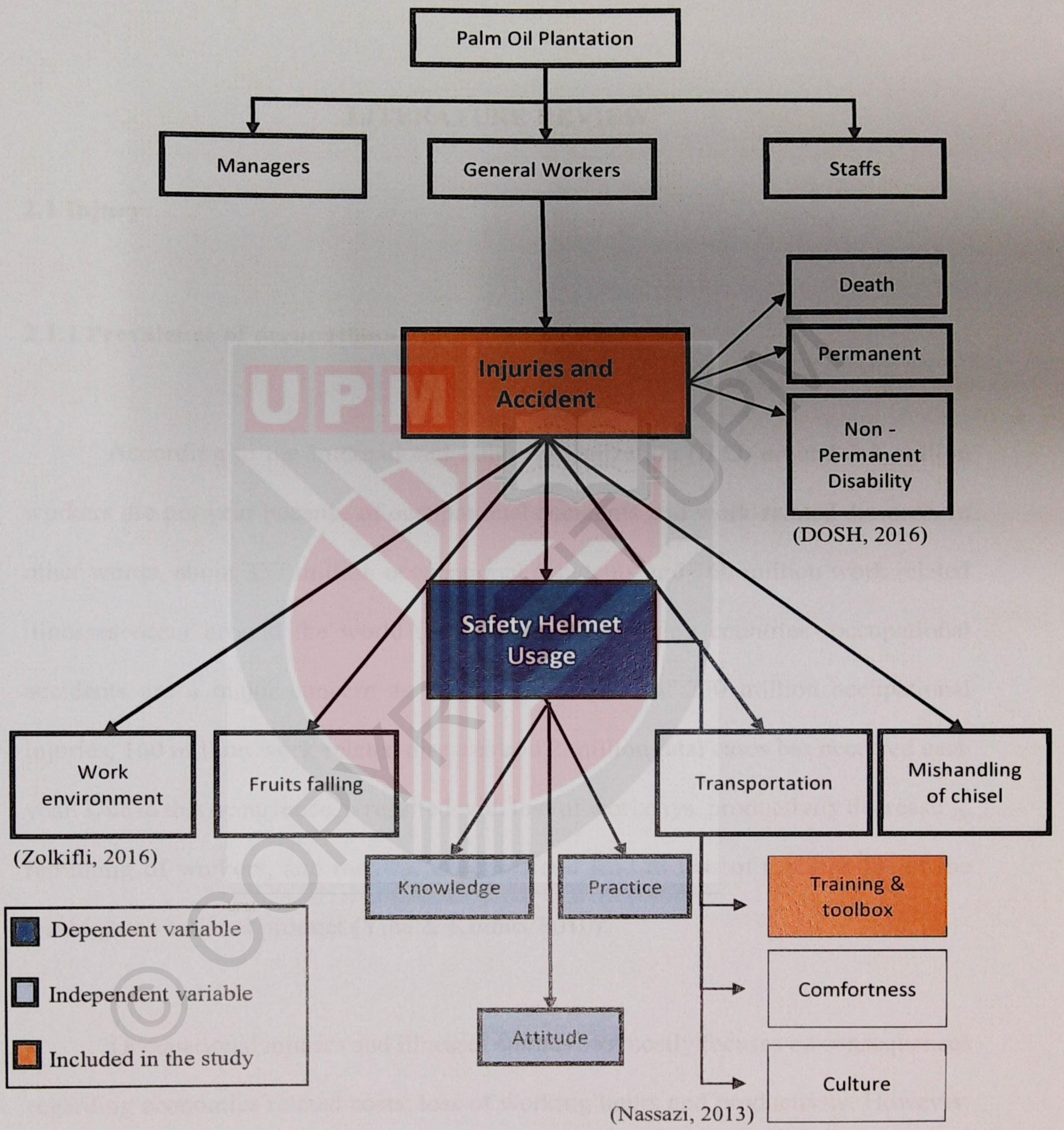

Figure 1.0 Conceptual framework

CHAPTER 2

LITERATURE REVIEW

2.1 Injury

2.1.1 Prevalence of occupational injury

According to the International Labor Organization (ILO) around 2.3 million workers die per year because of occupational accidents and work-related diseases. In other words, about 337 million occupational accidents and 160 million work related illnesses occur around the world (Niu, 2010). Developing countries' occupational accidents are a major concern as there is estimation of 250 million occupational injuries, 160 million work-related diseases and 2 million fatal cases has occurred each year. Due to this occurrence, it resulted with loss of workdays, productivity decreasing, retraining of workers, and medical expenses and lead to loss of roughly 4% of the world gross national product (Yiha & Kumie, 2010).

Occupational injuries and illnesses studies has mostly focuses on consequences regarding economics related costs, loss of working hours and productivity. However, it was found that there are more social consequences after injuries occurred. Such consequences were involving filing and administrations of workers' compensation claims, medical care, daily activities, psychological and behavioral responses,

rehabilitation, mental health, vocational function, return to work and social justice (Dembe, 2001).

2.1.2 Prevalence of Injury among Workers in Malaysia

Prevalence of injuries among workers in Malaysia is a concern too. An analysis conducted in previous study revealed that there were a total of 2822 deaths cases in occupational scope with average of 9.2 death cases per 100,000 workers annually. The result from that analysis was compared with the fatal cases in United States (US) from Bureau of Labor Statistics where Malaysian's death cases figure was found to be higher than US country. Meanwhile, the author also found that men had 12 times higher annual average of occupational incidence to compare with women which the proportion was 13.8 versus 1.2 per 100,000 workers. It was said that it is probably due to men were having more high risk job than women (Adinegara, Razzak & Azman, 2013).

A study by Al-Husny, Rampal and Manohar in 2012 on work-related hand injuries (WRHIs) in Hospital Universiti Kebangsaan Malaysia found that 24.9% of industrial accidents were WRHIs. Plus, among the occupational accidents cases reported in emergency department, 30% of them were related to hands. WRHIs were found occurred mostly in industry sectors such as manufacturing, construction and food preparation. Machine operators were found to have 26 times higher possibility to encountered severe WRHIs and mostly were from metal machinery industry.

A report of accidents data analysis review in construction industry from statistics collected from DOSH, SOCSO and Construction Industry Development Board (CIDB) remarked that this sector is a highly hazardous industry. This is because SOCSO has recorded an increasing of injuries incidence that includes permanent disabilities and fatalities from 1996 to 2008 (Dayang, Abang & Chai, 2012). An accident occurred in construction site of an apartment in Putrajaya involving a passenger and material hoist machine was crashed down suddenly from the height of 30 meters to the ground level. The accident causes four workers who were in the machine died at the location and the machine was under severe damage (DOSH, 2015).

Another study reported in the health sector about the relationship between psychosocial risk factors and work-related musculoskeletal disorders (WRMSDs) among public hospital nurses in Malaysia. The findings indicated high prevalence of WRMSDs in many body regions, and the risks of developing WRMSDs according to the various body regions were associated with psychosocial risk factors (Amin et al., 2014). A study from the grass and turf maintenance industry has shown that there were positive Hand-Arm Vibration Syndrome (HAVS) symptoms relationships between the low–moderate exposure group and the high exposure group among hand-held grass-cutting workers. The prevalence ratio was considered high because there were indicators that fingers turned white and felt numb (Azmir et al., 2016).

However, accidents statistics that available is only a gross amount as it does not represent the true numbers of workplace incidents. Even though the documents for under-reporting cases were well kept, the factors of occurrence were less known to

people. It was reported that there was high prevalence of non-reported cases among palm oil workers which was 75%. ILO has the estimation that a total of 1,301,816 occupational accidents has gone unreported to DOSH for all industries in 2010 (Shamsul, 2014)

2.1.3 Prevalence of Injury in Agricultural Sector

Generally, most injuries happened in Malaysian palm oil industry were related to musculoskeletal disorders (MSDs) in the near future. Specifically in agricultural sector in nationwide, there are numerous different cases has been reported. An investigation directed in Saskatchewan, Canada, demonstrated that operating tractor, tractor operations, engaged with large animals and veterinary practices were recognized as the risks factors for injuries in agricultural (DeWit et al., 2015). While in United States, MSDs in labor-intensive agriculture are still ranked among the top health problems facing agricultural workers especially in harvesting fresh fruits and vegetables. The activities include lifting and carrying heavy loads (over 50 lb); sustained or repeated full body bending (stoop); and very highly repetitive hand work (clipping, cutting) (Fathallah, 2010). Another study in Ohio indicates that risk of injury appears strongly related to age, with most serious risk among agriculturists under 30 years old (Mac Crawford et al., 1998).

A study from Malaysia regarding ergonomics in palm oil revealed that the palm oil plantations workers presents significantly different ergonomics risk factors for fresh fruit bunch (FFB) cutters during different stages of harvesting (Ng et al., 2013).

This is in agreement with another study from Malaysia regarding the prevalence of musculoskeletal disorder and association with productivity loss. The study showed high probability of absenteeism will influence the productivity as well as to workers in terms of socio-economically (Ng et al., 2014). A 20-years old harvester sustained a left brachial plexus injury after a palm oil fruit hit him from 5.5 meters high while he was harvesting fresh fruit bunches (FFB) as shown in Figure 2.1. This case is reported as a rare case (Arumugam & Tamrin, 2014).

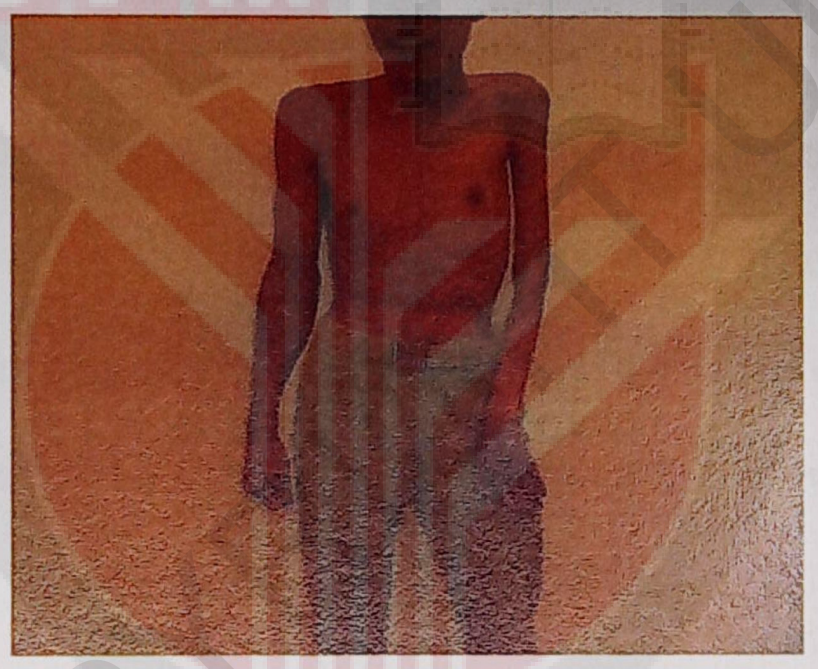

Figure 2.1: Brachial Plexus Injury

Another case study in agricultural sector regarding accidents trend in rubber, vegetable and pineapple plantation found that there was high occurrence of falling (35.8%) during working. This was due to the environmental factors such as floor of land in plantation was wet and constant humidity exist in the area. Overall result on causes on injuries were found to be due to muscle sprain (32.1%), cut wounds (19.1%), and fractures (15.8%) (Shamsul, 2014)

2.1.4 Occupational accidents in Malaysian Agricultural Sector

Occupational accidents can be defined as any accident that takes place while performing the task (Zolkifli, 2016). An occupational injury is any personal injury, disease or death resulting from an occupational accident; an occupational injury is therefore distinct from an occupational disease, which is a disease resulted from exposure over a period of time to risk factors arising from work activity (Glossary of Statistical Terms, 2002). Based on figure 2.2, occupational accidents that has been reported up until October 2017 shows the highest number of accidents are from manufacturing sector (1691) and followed by agriculture, forestry, logging and fishing (393). In addition, the occupational accidents cases in 2017 are reported higher than 2016 where manufacturing sector had 1398 cases and agriculture, forestry, logging and fishing has 467 cases in 2016 (DOSH, 2017). Figure 2.3 showed the latest trend of occupational accidents in agricultural sector of 2014 until 2016.

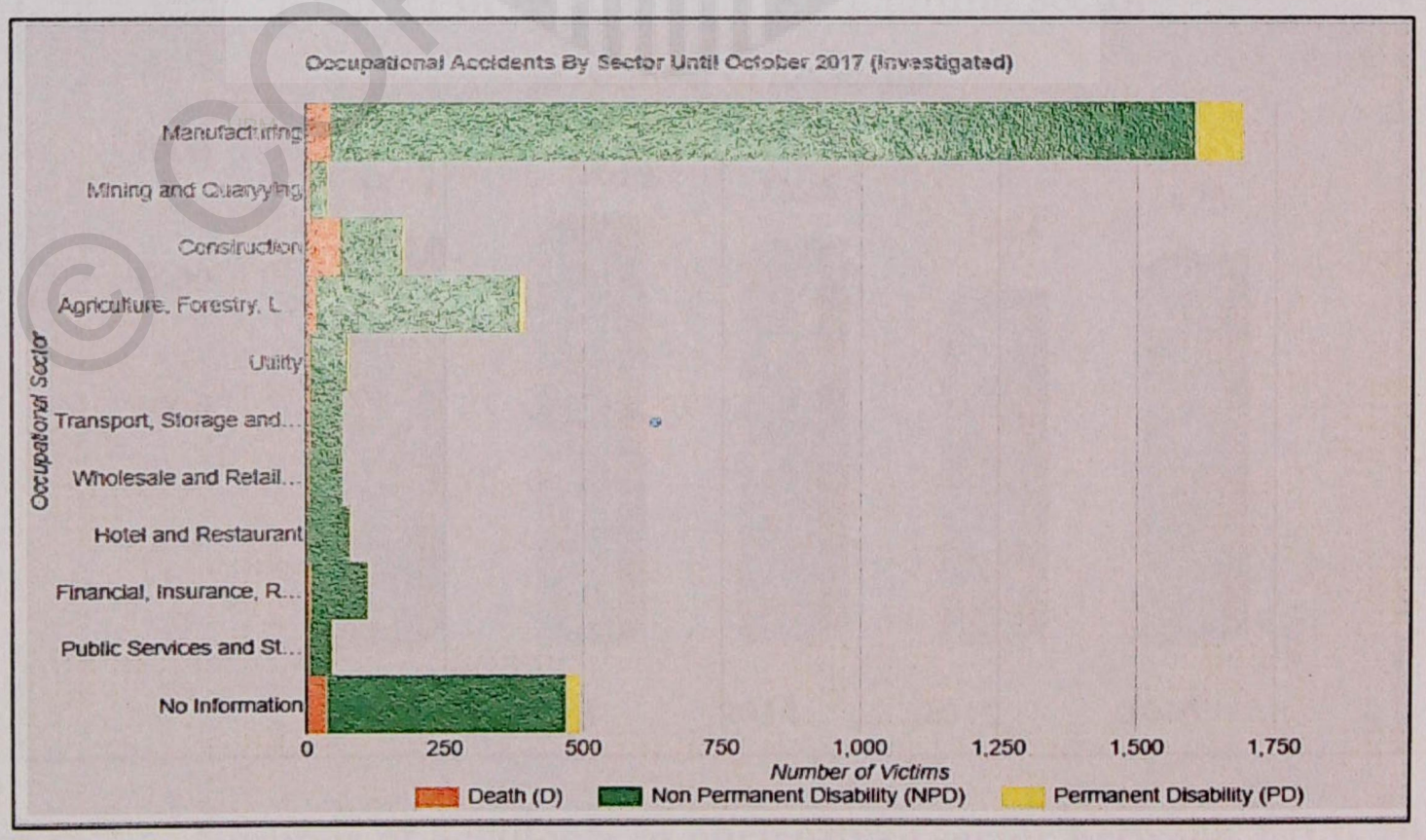

Figure 2.2: Statistics of occupational accidents by sector in Malaysia

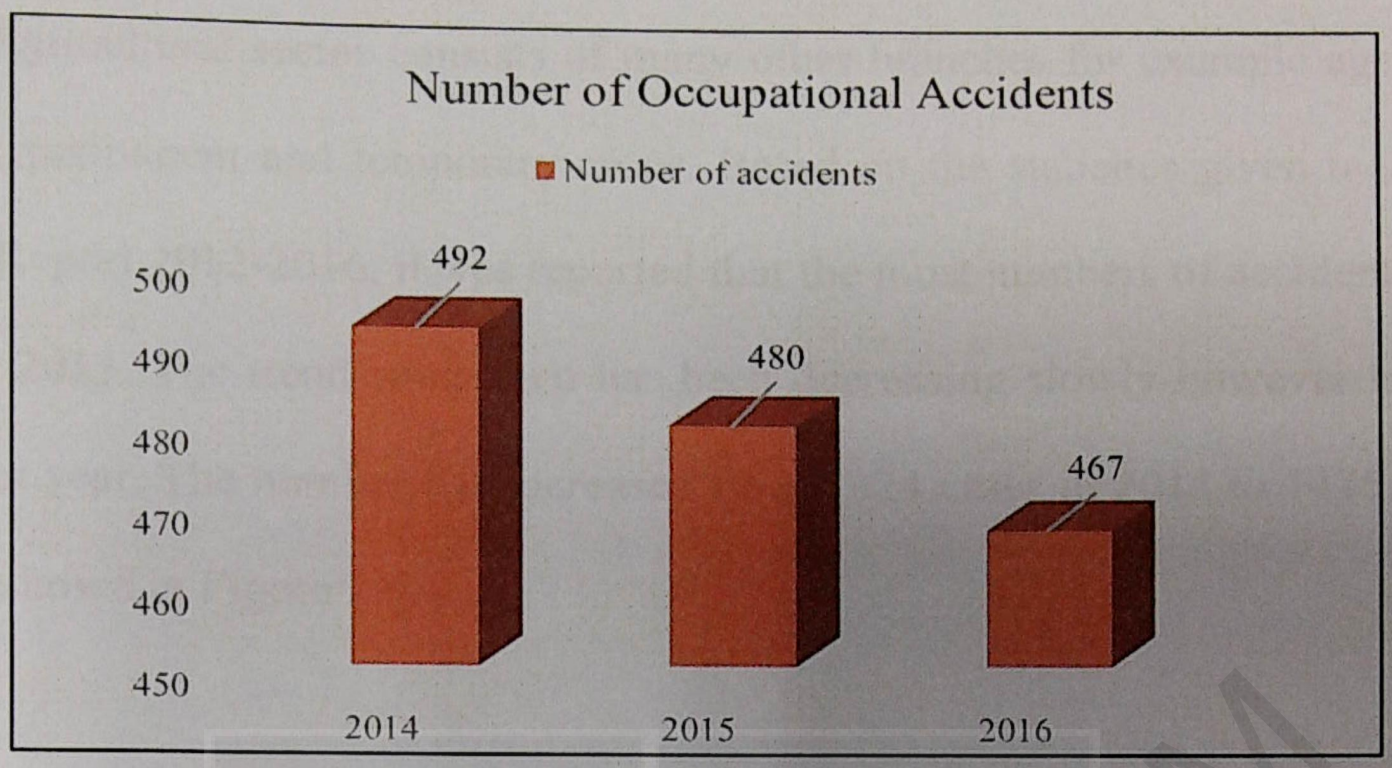

Figure 2.3: Statistics of occupational accidents in Malaysia of 2014-2016

In agricultural sector, the data of occupational accidents can be access through Department of Safety and Health (DOSH) and Social Security Organization (SOCSO) annual report. The numbers of accidents in the year of 2007 until 2010 were 765, 418, 492 and 515 respectively as shown in Figure 2.3 (DOSH, 2016).

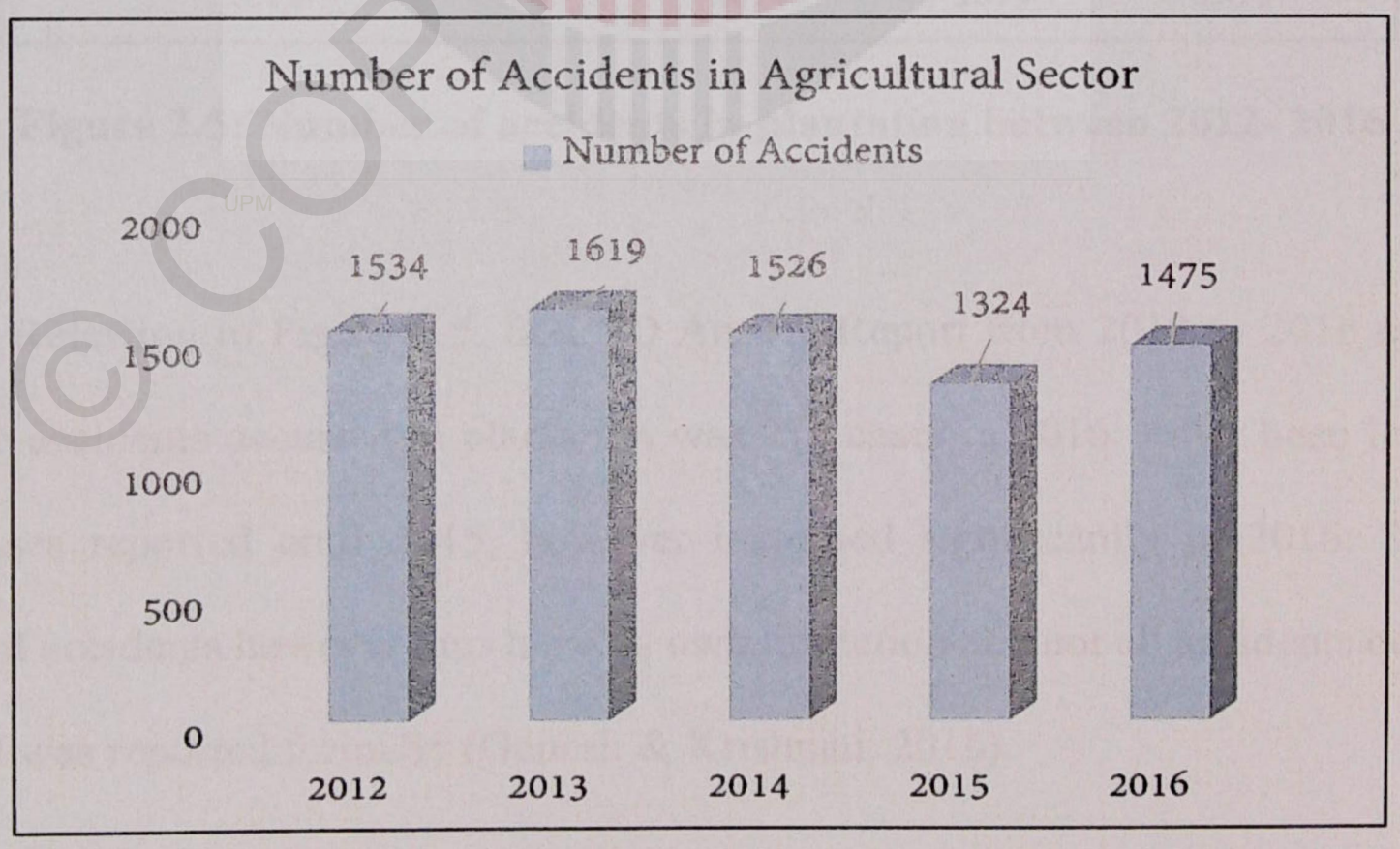

Figure 2.4: Number of accidents in agriculture sector between 2012- 2016

Agricultural sector consists of many other branches for example agricultural services, permanent and temporary crops. Based on the statistics given by SOCSO Annual Report 2012-2016, it was reported that the most numbers of accidents was in the year 2013. The trend since then has been decreasing slowly however increased again last year. The number has increased from 1324 cases in 2015 to 1475 cases in 2016 as shown in Figure 2.4.

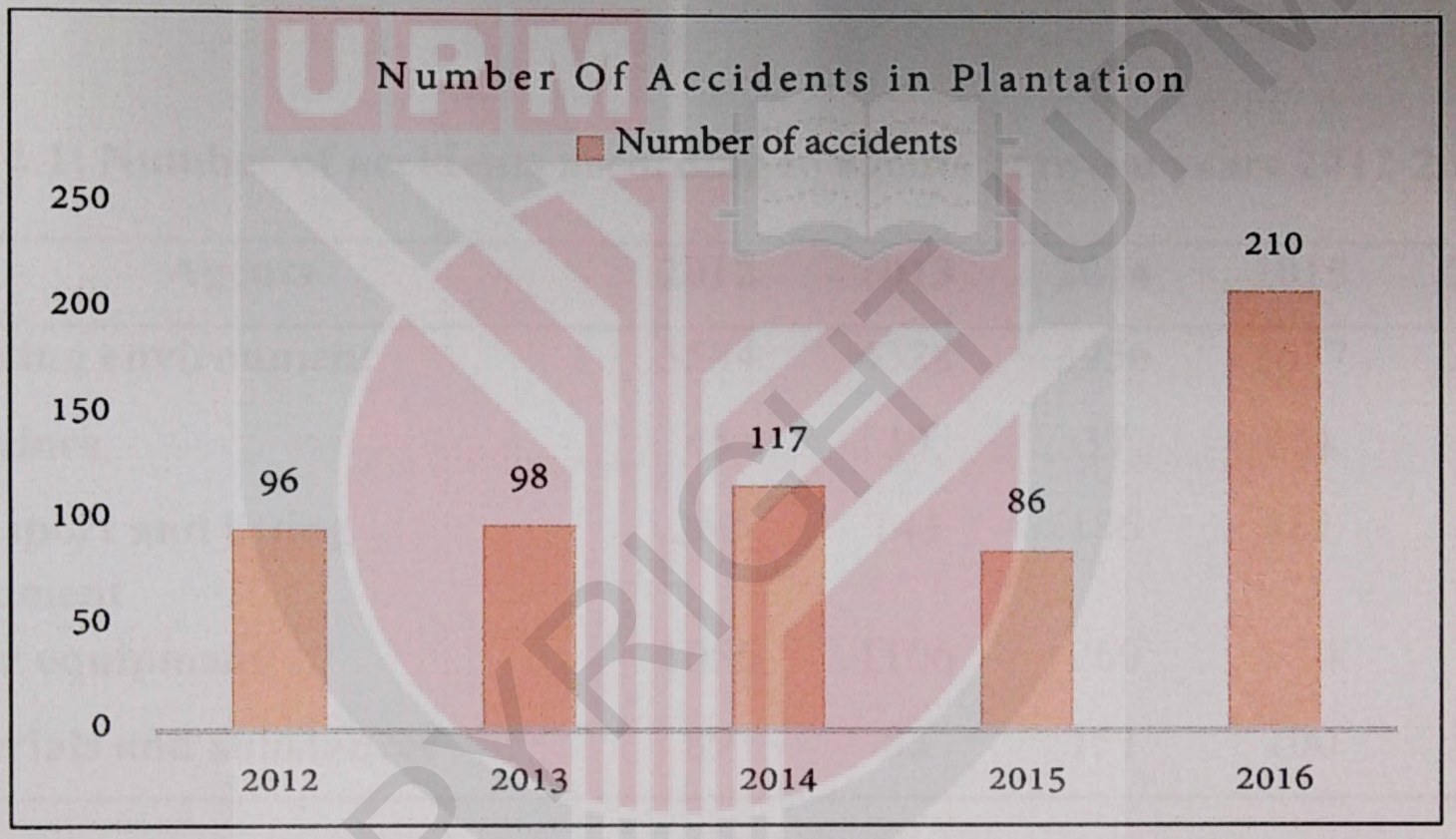

Figure 2.5: Number of accidents in plantation between 2012- 2016

Referring to Figure 2.5, SOCSO Annual Report from 2012 to 2016 reported that the accidents occurred in plantation was 210 cases in 2016. It has been less than 100 cases reported until 2015, however increased significantly in 2016. SOCSO reported accidents however thus have its own limitation and not all accidents occurred in field was reported formally (Ganesh & Krishnan, 2016).

The most significant causing factor of accidents for the consecutive years were the working environment as there were more than 3000 cases each year starting form 2012 until 2016. Example of working environment such as weather, traffic related injuries in working premise and other hazard. As shown in Table 2.1, the other causes of accidents in 2016 were occurred due to machines usage (440), use of transport and lifting equipment (209). The trend of accidents is increasing among those plantations workers as reported (SOCSO, 2016).

Table 2.1: Number of accidents according to agents between years 2012-2016

Agents	2012	2013	2014	2015	2016
Working environment	3584	4328	3956	3677	3905
Machines	45	39	37	261	440
Transport and lifting equipment	262	143	186	161	209
Other equipment	1056	1106	960	530	337
Materials and substances	89	83	151	100	99

In addition, the data from the report was also presented according to the location of injury based on the Table 2.2. The major part that involved in accident was the upper limb, followed by trunk area, multiple location, head and neck area. The numbers of accidents does not has much difference as trends keep changing each years (SOCSO, 2016).

Table 2.2 : Number of accidents according to location of injury between year 2012-2016

Location of injury	2012	2013	2014	2015	2016
Head	5465	5352	4932	5019	5290
Neck	280	249	264	224	264
Trunk	3931	4769	6177	7233	10057
Upper limb	23696	23442	21512	20328	20212
Multiple locations	9498	9514	10392	10020	9990

2.2 Personal Protective Equipment (PPE)

2.2.1 Factors of Workers using PPE

Personal protective equipment or commonly referred as "PPE", is any equipment worn to minimize exposure to different kind of hazards. PPE examples include items such as gloves, foot and eye protection, protective hearing devices such as earplugs and muffs, safety helmet, respirators and full body suits (US Department of Labor, 2010).Workers basically have known the importance of PPE usage yet there are still tons of reason effecting their usage (Carpenter et al., 2002). A study revealed the reasons influencing workers to not wear protective eyewear equipment were due to the lack of fitness and comfort of the eyewear. Besides that, young age workers and lack of training were also found out as the factors of not wearing the eyewear (Lombardi et al., 2009).

A study in Uganda in sugar factory reported that workers believed that the usage of PPE will protect them against hazards and injuries. However, they still found

that only 29.7% of the respondents had complete PPE on them. The workers who mostly worked in pan flour and boilers found PPE uncomfortable to wear in such place. In addition, the workers also had challenges with PPE replacement as they need to bring the old or worn out PPE to their supervisor before getting the replacement (Akello & Kilama, 2011). Furthermore, the most frequent factors adding to inconvenience of wearing PPE were associated with the workers' feelings that the PPE was not required, made another risk, meddling with their work and was bothersome to wear (Khanzadeh, 1988).

2.2.2 Safety Helmet Usage in Agricultural Sector

Safety helmet is one of the Personal Protective Equipment (PPE) that has the function of protecting our head. Back in year of 1919, safety helmets or hard hats were initially inspired from the soldiers of World War I to be used in the industrial setting (Goetsch, 2015). A study regarding animal related non-fatal injuries to youth occurred on farms in the United States stated that in an event of horse related injury, the consequences had occur at the face or head. With no safety helmet as head protection, the severity of injury can be similar to car accidents (Hendricks & Adekoya, 2001). Moreover, a study in Australia regarding agricultural health and safety performance has concluded that the implementation of safety and health plan in farm are poor.

Another study from Western Australia regarding riders of agricultural motorcycle related injuries among adolescents concluded that the injuries are a significant issue in rural area and the riders need intervention and training to prevent

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injuries (Lower et al., 2003). A review written by National Research Council and Institute of Medicine United States on safety equipment related to agricultural revealed that cowboys are now riding motorcycles and all-terrain vehicles (ATV) and fishermen are using advanced fibers instead of wire rope. Many riders of ATVs were not trained to handle these fast-moving vehicles and most of them do not wear protective helmet. Therefore, the committee of National Institute for Occupational Safety and Health (NIOSH) of Agriculture, Forestry and Fishing Research Program (AFF) were asked to be more active in foreseeing and addressing possible hazards from new and existing machinery. Previous study from University of Putra Malaysia has showed that the knowledge, attitude and practice of safety helmets are not a prominent indicator for head injury among harvesters. Intervention need to be included to increase the awareness of harvesters to wear safety helmet (Zolkifli, 2016).

2.3 Knowledge, Attitude and Practice

Knowledge, Attitude and Practice (KAP) study is a type of survey that is used to investigate human behavior related to certain issues. It will identifies what people know (knowledge), how they feel (attitude) and what they do (practice) upon the target issue (Vandamme, 2000). Meanwhile, it can also define knowledge as a set of understandings, also one's capacity for imaging and one's way of perceiving. Attitude is a way of being, a position. It helps in explaining that subject is adopting one practice when it is submitted to a stimulus. Lastly, practice as observable behavior when the subject response to a certain stimulus (Leresche, 2011).

KAP study design structure should have a standard method before conducting the survey. Each section should be consistent to ensure the difference in results are independent of the sampling method. Each section of KAP should be analyzed differently as it have different nature of questions purposed. Once questionnaire has been completed, validation must be conducted to ease respondents understanding, ensure effectiveness in providing useful information and until the questions are interpreted correctly and understood by different levels of individuals. Pre-testing on small group should be sufficient to represent the population for validation. Questionnaire can be modify accordingly if necessary to reflect the result of pre-test. Then, the study can be proceed with the final version of questionnaire (Kaliyaperumal, 2014).

KAP study has served as educational diagnosis for the community. When the understanding level of knowledge, attitude and practice are known, it will enable the creation of better awareness program to meet the needs of community (Kaliyaperumal, 2014). Study on Hepatitis B among healthy populations in Pakistan shows poor level of KAP as 75.4% of the respondents scored low scores on knowledge. The result of the study helps the researcher to further improve in prevention and management of Hepatitis B in the country especially towards the residents in rural areas (Noman, 2012). A study has assessed on the knowledge of health problem awareness and their attitude and practice in preventing the potentially re-emerging problems. Results showed that the workers have high level of knowledge regarding the use of personal protective equipment but only few numbers of them were actually using it. It was

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shown that there were a wide gap between workers knowledge and practice with personal protective equipment (Parimalam, 2007).

An intervention study carried out in China to assess the community KAP regarding severe fever with thrombocytopenia syndrome in endemic areas during before and after program implementation. After two months of follow up, the results showed that there was significance increase in the total after KAP score. This concluded that the program was effective in improving KAP level of the residents in endemic areas regarding the syndrome (Lyu et al., 2018). A research study on KAP of Occupational Safety and Health among medical laboratory personnel to evaluate the impact of the intervention campaign concluded that the campaign implemented should be improved. This is because most of the after score remain unchanged and almost the same with score before campaign. Continuous education and training were suggested to be maintained to fill in the gaps between the medical laboratory personnel's KAP of Occupational, Safety and Health to promote safe and health working environment (Narayanan, 2013).

A KAP study of pesticide application at selected agricultural industries such as pineapple, rubber and vegetable was conducted among the farmers. Result showed that they have high level of knowledge of pesticides usage, non-concern level on the attitude and have good practice on safety measure. Farm workers with good pesticide knowledge were more cooperative to use pesticides safely according to recommended guideline, including the use of PPE during working. The result of the study also stated that the management did good job in maintaining the good practice of PPE usage

however lack of regular refreshment training for the farmers. Proper training and refreshment practical was suggested to improve the safe practice of pesticide application (Shamsul, 2014).

Another Knowledge, Attitude and Practice study was conducted among palm oil harvesters in Selangor with an intervention program. The program includes training on safety helmet usage using intervention video and safety toolbox talk. Harvesters was reported to have high score for knowledge, fair score for attitude and practice. However, there were no significance difference of the safety helmet practices during before and after intervention as the trends decrease in number after the intervention. Study revealed that there is a need to improvise training module and regular supervision to help improve the practice of safety helmet usage among harvesters. (Zolkifli, 2016).

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CHAPTER 3

METHODOLOGY

3.1 Study Location

A study was carried out in three palm oil plantations under Boustead Plantations Berhad (BPB) in Sandakan, Sabah. There were a total of 13 plantations under BPB, however the three plantations are purposively chosen by the plantation management according to availability, distance from one to another plantations and transportation wise. The three given plantations were Sutera Plantation, Resort Plantation and Nak Plantation. The location is shown below in figure 3.1.

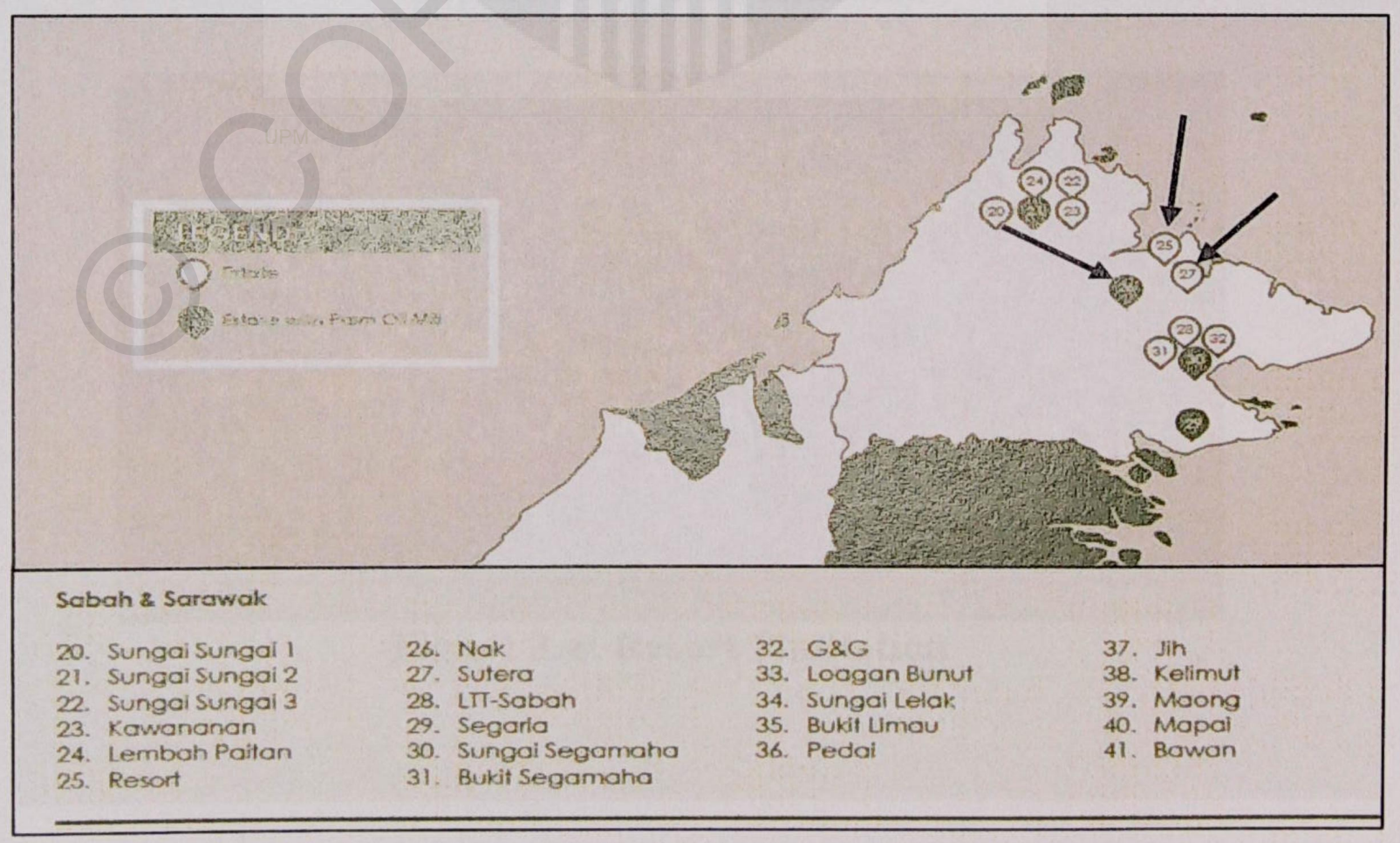

Figure 3.1: Study location

Figure 3.2: Sutera Plantation

Figure 3.3: Nak Plantation

Figure 3.4: Resort Plantation

3.2 Study Design

A quasi-experimental study design of pretest-posttest was carried out to determine the knowledge and practice of harvesters on safety helmet usage before and after implementation of training. Information on prevalence and causes of injuries were also collected as a baseline details for plantation related injuries. The intervention tools consists of training video, toolbox talk, banners and posters regarding safety helmet usage.

3.3 Study Population

The population of this study are male harvesters of 13 plantations under Boustead Plantation Berhad.

3.4 Sampling

3.4.1 Sampling Method

There two stages of sampling in this study which were during selection of plantations and respondents. Sampling method is as described below:

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3.4.1.1 Plantations

Purposive sampling method is used in the selection of plantations as it is determined by the management of the plantation. The three plantation chosen were Sutera, Nak and Resort Plantation. The management has to consider the sample size needed, availability of the plantation, facilities and accommodation for researcher during plantations selection.

3.4.1.2 Respondents

Harvesters' name list is obtained from Human Resource department of each plantations. Total population of the three chosen plantation were 136 and each plantation have different numbers of harvesters. Respondents were randomly chosen for each plantation according to the calculated sample size.

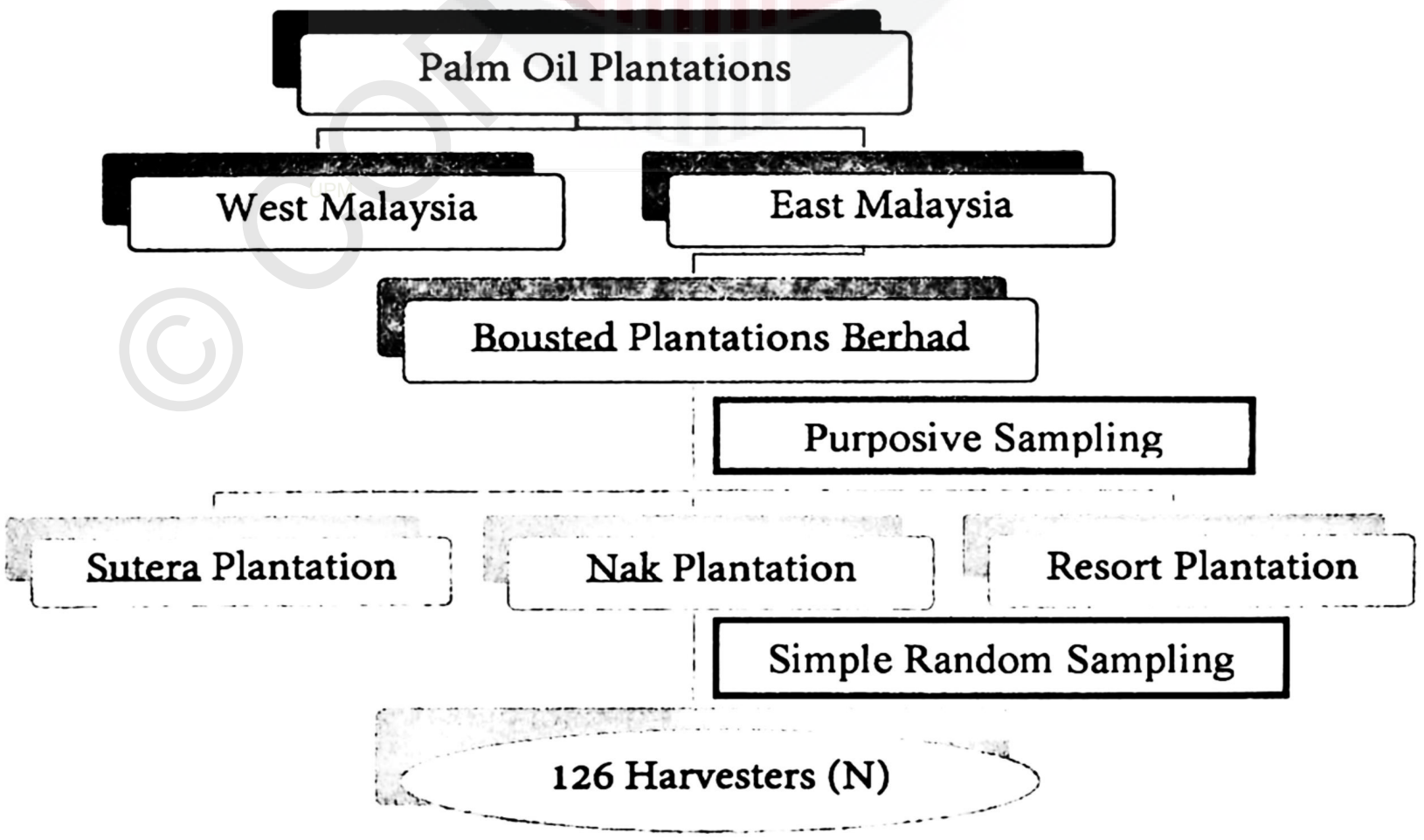

Figure 3.5: Sampling method summary

3.4.2 Sample Size

Sample size was calculated based on objectives of the study. Objective with larger sample size was chosen as the final sample size of respondents required for this study.

i. To determine the prevalence and causes of injuries among palm oil harvesters

Sample size is calculated based on the formula for estimation of population prevalence (Daniel, 1999).

$$n = \frac{Z^2 P (1 - P)}{d^2}$$

Where,

n = Sample size

Z = Statistic for a level of confidence

P = Expected prevalence

d^2 = Desired precision

According to Social Security Organization (SOCSO), general injury has the prevalence of 3.77% which is reported in SOCSO Annual Report of 2016 (SOCSO, 2016). At 95% of confidence interval which has 1.96 of standard errors and 5% of desired precision, the sample size is calculated as below,

$$n = \frac{(1.96)^2 0.0377(1 - 0.0377)}{0.05^2}$$

$$n = 56 \text{ Harvesters}$$

Adjustment for estimated response rate is calculated from 10% of the sample size.

$$\frac{n}{1-L},$$

Where,

n = Sample size

L = non-response

$$\frac{56}{1-0.1} = 62$$

Therefore, the total sample size required for this objective is **62** respondents.

ii. To identify the difference on harvesters knowledge of safety helmet usage before and after implementation of training and to determine the difference on harvesters practice of safety helmet usage before and after implementation of training.

Sample size is calculated based on the formula for one group (Lu & Llewellyn, 2006).

$$n = \frac{z^2{}_{1-\alpha/2}\, P\,(1-P)}{d^2}$$

Where,

n = Sample size

$z^2{}_{1-\alpha/2}$ = Standard errors associated with confidence interval

P = Prevalence of estimated proportion

d^2 = Desired precision

According to Social Security Organization (SOCSO), head injury has the prevalence of 8.02% which is reported in SOCSO Annual Report of 2016 (SOCSO, 2016). At 95%

of confidence interval which has 1.96 of standard errors and 5% of desired precision, the sample size is calculated as below,

$$n = \frac{(1.96)^2 0.0802(1 - 0.0802)}{0.05^2}$$

$$n = 113 \text{ Harvesters}$$

Adjustment for estimated response rate is calculated from 10% of the sample size.

$$\frac{n}{1-L},$$

Where,

n = Sample size

L = non-response

$$\frac{113}{1-0.1} = 126$$

Therefore, the total sample size required for this objective is **126** respondents.

3.4.3 Sampling Unit

The respondents for this study are the harvesters that working in the palm oil plantations. Below shown the inclusive and exclusive criteria included in the study:

Inclusive criteria:

i. Male harvesters who has the job as fresh fruit bunches cutter

ii. Age between 18-60 years old

iii. Able to read and understand instructions in Indonesian/Sabahan language

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Exclusive criteria:

i. Plantation managers

ii. Employer

3.5 Study Materials

3.5.1 Questionnaires

Questionnaires used in the study was in bilingual language (Bahasa Malaysia and Indonesian language). There were two phases of questionnaire session conducted which were:

Phase 1: Pre-test Questionnaire

Part A: Knowledge on safety helmet usage

Part B: Attitude on safety helmet usage

Part C: Practice on safety helmet usage

In this set of questionnaire (Appendix III), researcher aim to determine the respondents' current knowledge, attitude and practice on safety helmet usage. Part A consists of seven items of "yes" and "no" questions on knowledge of the respondents regarding the usage of safety helmet. For example, if they know that the usage of safety helmet is compulsory during working, head injury can cause death, use of broken and holed safety helmet and the failure of wearing safety helmet can be punished or compound.

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Part B also consists of seven items of "yes" and "no" questions which asked on the attitude of the respondents in using the safety helmet such as their usage during management check, the willingness of them wearing and colleagues' encouragement on using safety helmet. For part C, it consists of seven items of "yes" and "no" questions to ask on respondents' practice of safety helmet such as practicing the correct way of using safety helmet and check-up before using, wearing chin strap, tighten the gear and reminds colleagues to wear safety helmet as well.

Score for knowledge, attitude and practice (kap) were calculated as such "yes" answer will score two (2), one (1) for "no" and (0) for "I don't know" (Zolkifli, 2016). For each section of kap, harvesters can get maximum score of 14 and minimum of 0. Those who scored below 50% of were categorized as low level, between 50%-75% as fair level and above 75% as high level of knowledge, attitude and practice score (Anees, 2014).

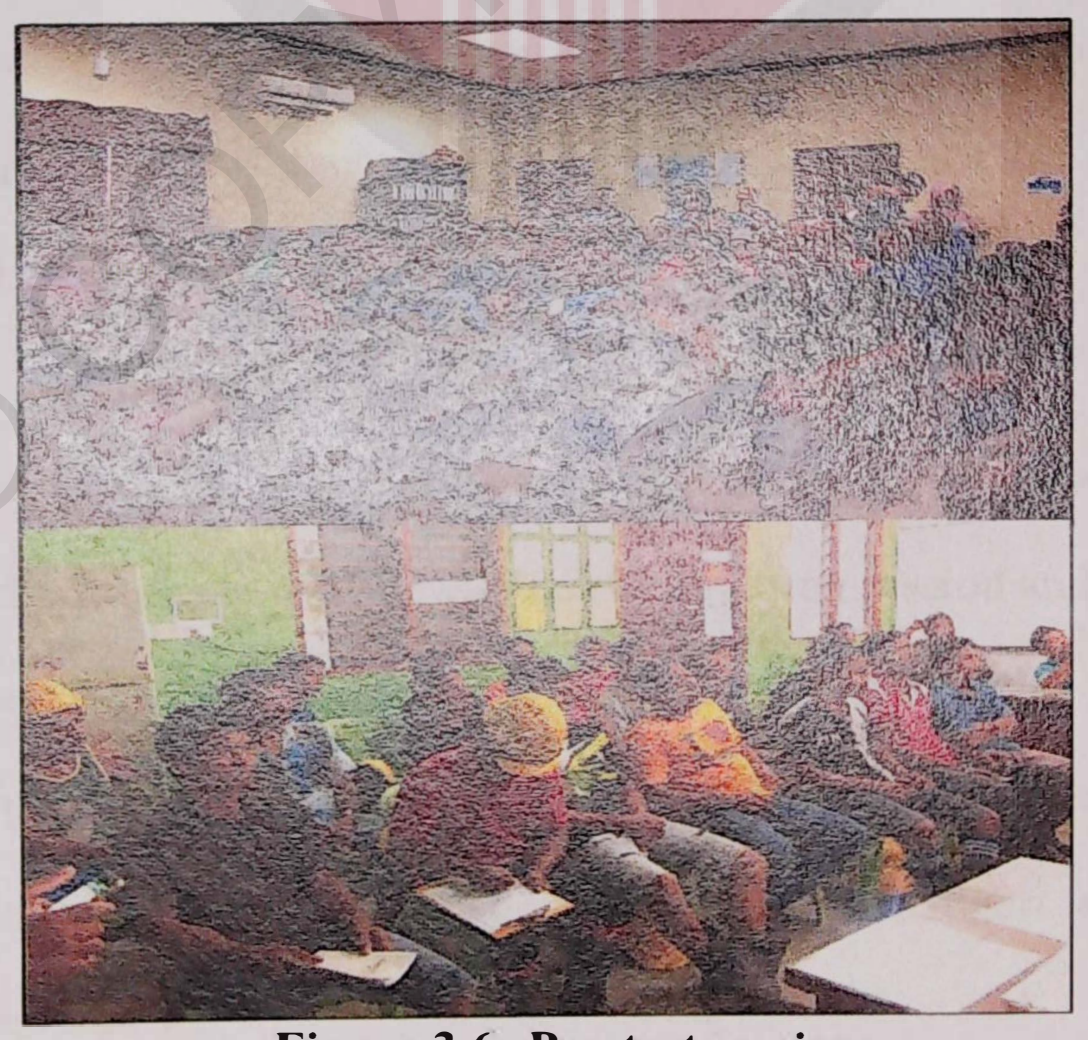

Figure 3.6: Pre-test session

Phase 2: Post-test Questionnaire

Part A: Socio demographic background

Part B: Occupational information

Part C: Knowledge on safety helmet usage

Part D: Injury information

After three days, researcher collected the data for posttest questionnaire (Appendix III) and obtained information on socio demographic, occupational and injuries information and questions on knowledge of safety helmet usage for post-test purpose after training and toolbox implementation.

In Part A, the researcher asked on harvesters' name, age, race, marital status, educational level and their salaries to discuss later on the respondents' background. Part B includes questions on occupational background such as working years as harvesters, personal protective equipment (PPE) provision and the use of it. Besides, this part also questioned if there are any training conducted by management and respondents attendance during training session.

Part C contained questions on knowledge of safety helmet usage which act as the posttest for the respondent's knowledge after training session and toolbox has been given. The score was calculated using the same method as the pre-questionnaire calculation. In part D, researcher asked on injury information of respondents which included questions on any injuries occur during work, which part is affected and the main cause of the injuries.

Figure 3.7: Post-test session

3.5.2 Intervention

3.5.2.1 Training

A five minutes training video in Indonesian language produced by an expert team led by an ergonomist was shown to the respondents to let them have better understandings on the use of safety helmet. This video was used in previous study as intervention tool for plantations in Selangor (Zolkifli, 2016). The video content includes correct ways of using safety helmet, how to identify broken safety helmet, do's and don'ts towards safety helmet and reminders to wear safety helmet.

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Figure 3.8: Training video

3.5.2.2 Toolbox Talk

Toolbox talk was given during roll-call session early in the morning in local sabahan language. Researcher spent two to three minutes to demonstrate the right way of using safety helmet such as how to tighten the chin strip and helmet's gear at the back, reminders to always wear the safety helmet when they are working and take off the helmet only when the surrounding is safe or out of the working zone. This toolbox talk content has been checked and approved by Safety Manager of Boustead Plantation Berhad.

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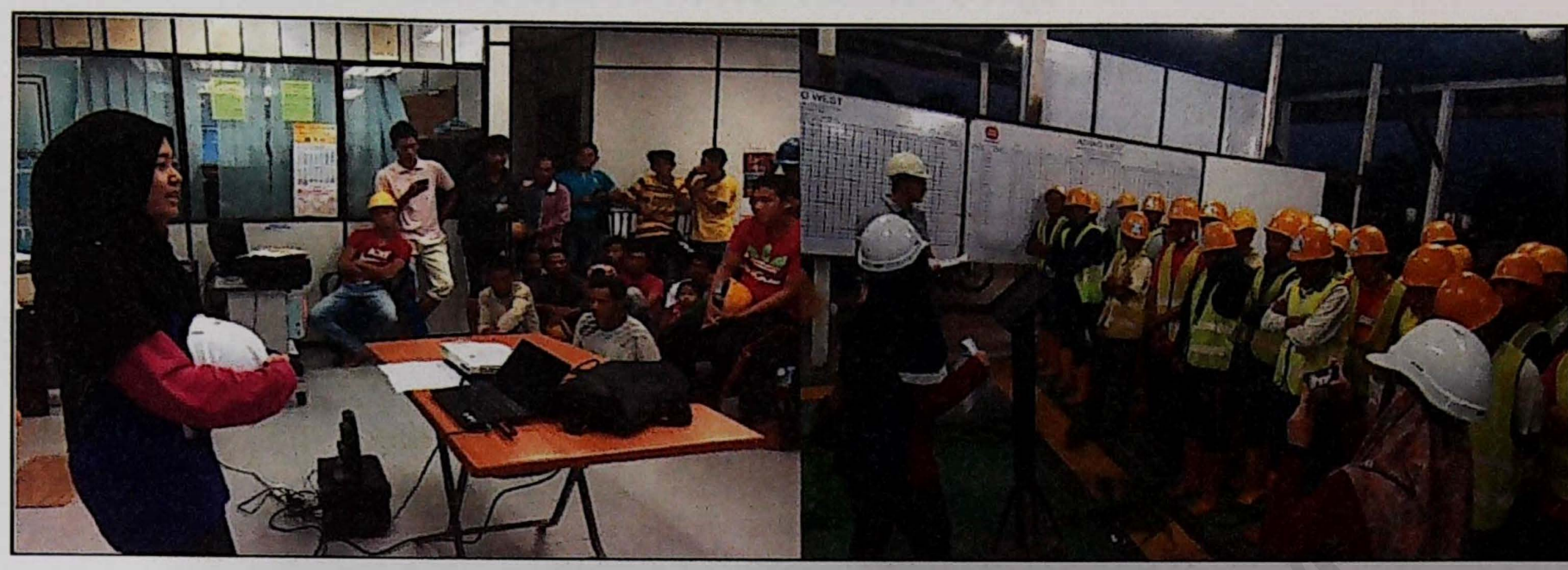

Figure 3.9: Toolbox talk session

3.5.2.3 Banners and Posters

Banner and poster related to safety helmet usage message were put up at visible area such as assembly and rest hub area during first day of arrival at each plantation respectively.

Figure 3.10: Banners and Posters

3.5.3 Observation for Practice on Safety Helmet Usage

Observation method was used to collect data for practice item (posttest) on safety helmet usage. Different from pre-test, it was self-reported through questionnaire. After morning roll-call session, researcher entered the plantation field assisted by plantation's staffs and observed if the harvesters are wearing safety helmet during working and wearing chin strap. The result from the observation is used to compare with pre-test result of the same harvesters.

Figure 3.11: Field observation

3.6 Data Collection Flow

The data collection process was as summarized in figure 3.12.

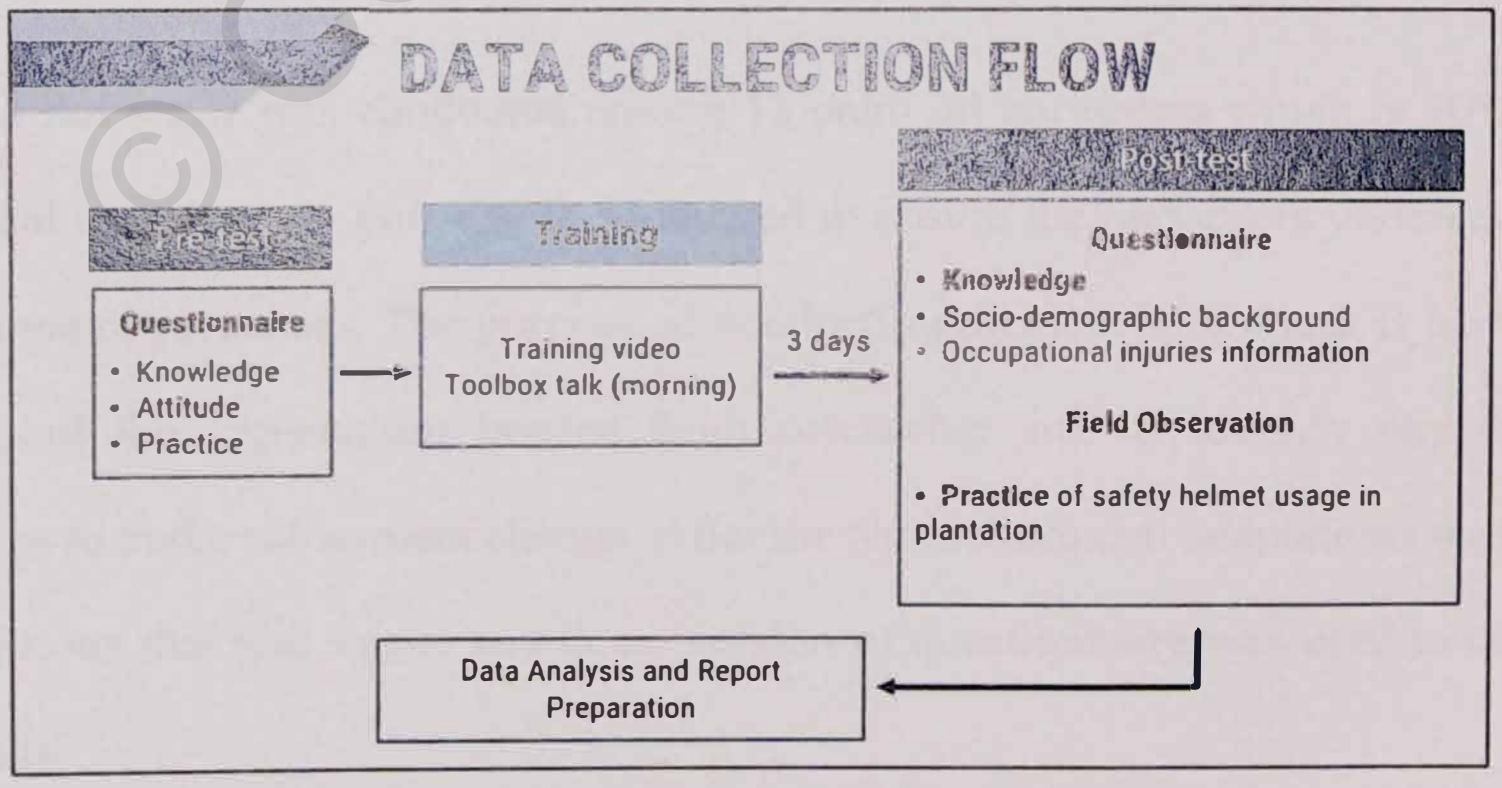

Figure 3.12: Data collection flow

3.7 Quality Assurance

3.7.1 Content and Translation Validity

The items in the questionnaire is based on validated questionnaire from previous study (Zolkifli, 2017) on knowledge, attitude and practice of safety helmet usage. Questionnaire was reviewed by a safety expert in the field of occupational, safety and health from Department of Occupational Safety and Health (DOSH) Malaysia and Safety Manager from Boustead Plantation Berhad. Content was evaluated to ensure the questions included are relevant to this study and aligned with the objectives and appropriate for the harvesters. The questionnaire was originally in Bahasa Malaysia and was translated to Indonesian language as majority of the harvesters are Indonesian. Translation was done by an Indonesian who is proficient in both Bahasa Malaysia and Indonesian language (Appendix III).

3.7.2 Pilot Study

Pilot study was conducted among 13 palm oil harvesters which is 10% from the actual sample size. This test is conducted to ensure the harvesters understand the questionnaire prepared. The purpose of conducting this test is to check if harvesters understand the explanation briefed from researcher and to identify any unclear questions to make subsequent change. After the test, subsequent adaptations was made on questions that was vague and latest version of questionnaire was used to conduct this study.

3.7.3 Reliability Test

Internal consistency of the questionnaire was tested using Cronbach's Alpha coefficient test through Statistical Package for Social Sciences (SPSS) software. The results from the pilot study showed the value was 0.766 for pre-test questionnaire and 0.771 for posttest questionnaire and was in acceptable range of Cronbach Alpha value.

3.8 Ethical Consideration

This study has obtained ethical approval from Ethics Committee of Researches Involving Human of University of Putra Malaysia (JKEUPM-2017-199).Written consent form was filled by respondents before they answer the questionnaire. All information regarding the respondents is private and confidential.

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3.9 Statistical Analysis

All of the data were analyzed using Statistical Package for Social Sciences software version 22. Normality test was applied on knowledge and practice data before and after training. The result form normality testing showed the knowledge data was not normally distributed. Thus, non-parametric analysis was used for the hypothesis testing. However, practice's item data was normally distributed and Mc-Nemar Test was used. Other statistical analysis used were such as shown in Table 3.1:

Table 3.1 Statistical Analysis

Objectives	Statistical Analysis
a. To determine the prevalence and causes of injuries among palm oil harvesters	Descriptive Analysis
b. To determine the prevalence of injuries at each plantations.	Descriptive Analysis
c. To determine the knowledge, attitude and practice of the harvesters on safety helmet usage before implementation of training.	Descriptive Analysis
d. To determine knowledge, attitude and practice of harvesters on safety helmet usage before implementation of training at each plantation	Descriptive Analysis
e. To determine the difference on harvesters knowledge on safety helmet usage before and after implementation of training.	Non – Parametric : Wilcoxon Signed Rank Test
f. To determine the difference on harvesters practice on safety helmet usage before and after implementation of training.	Chi-Square: Mc Nemar test

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CHAPTER 4

RESULTS

4.1 Socio-Demographic Background of Harvesters

A total of 113 harvesters were included in this study and the response rate was 89.7%. Questionnaire that were not completely filled was excluded in data analysis process. Table 4.1 shows the age distribution of harvesters with the mean age of 34 years and the common range of years between 21 to 40 years old. 59.3% of the harvesters have primary formal education and 23.9% of them had none. All of the harvesters are Indonesian with Bugis as the main tribes which constituted 76.1% of the sample population and the others were the minor tribes. The result also revealed that 36.3% of harvesters have working experience less than five years. However, majority (55.7%) of them have the year's range of experience between 5 to 20 years. Harvesters were also asked on their preference of their current safety helmet, 84.1% of responded positively while 15.9% did not like the safety helmet.

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Table 4.1: Distribution of socio-demographic data among harvesters

Variable	Frequency (N)	Percentage (%)
Age		
< 21 year old	11	9.7
≥ 21 and ≤ 30	41	36.3
≥ 31 and ≤ 40	36	31.9
≥ 40	25	22.1
Education		
None	27	23.9
Primary	67	59.3
Secondary	19	16.8
Race		
Bugis	86	76.1
Suluk	9	8
Timur	5	4.4
Others	13	11.5
Years of working in plantation		
Below 5	41	36.3
5-10	29	25.7
10-15	17	15
15-20	17	15
More than 20	9	8
Harvesters liked the current safety helmet		
Yes	95	84.1
No	18	15.9

N = 113

4.2 Prevalence and Causes of Injuries among Palm Oil Harvesters

Among the 113 harvesters included in the study, total of 80.5% has experienced injuries while working in plantations as shown in Table 4.2. It has also shown the distribution of injuries by body parts and area that has injured the most are legs (48.4%) and hands (42.9%). Followed with shoulder (12.1%), head (8.8%), eyes (3.3%) and neck (3.3%).

Table 4.2: Prevalence of injuries and distribution by body parts

Injury	Yes (%)	No (%)
Experienced injury	91 (80.5)	22 (19.5)
Injury by body parts		
Eyes	3 (3.3)	88 (96.7)
Head	8 (8.8)	83 (91.2)
Neck	3 (3.3)	88 (96.7)
Shoulder	11 (12.1)	80 (87.9)
Hands	39 (42.9)	52 (57.1)
Legs	44 (48.4)	47 (51.6)

N = 113

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Table 4.3 shows that among those 80.5% harvesters who had experienced injuries, the most reported cause of it was revealed to be due to hit by palm fronds thorns, which encountered by 70.7% of them. Others were due to environmental hazard (11%) such as encountered with wild animal and slip into nearby drain, large knife mishandling (7.7%), sickle mishandling (7.7%) and due to fall of palm oil fruit (3.3%).

Table 4.3: Causes of injuries prevalence among harvesters

Causes of injuries	Frequency (N)	Percentage (%)
Due to fall of palm oil fruit	3	3.3
Sickle mishandling	7	7.7
Due to hit by palm oil fronds	64	70.3
Large knife mishandling	7	7.7
Environmental hazard	10	11

n = 91

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4.3 Prevalence of Injuries According to Plantations

4.3.1 Plantation 1: Sutera Plantation

In Sutera Plantation, there are total of 58 harvesters in this plantation where 72.4% (42 harvesters) experienced injuries during their working period in the plantation. Hands (38.1%) and legs (47.6%) are the body parts that injured the most among harvesters. Then, it was head area (11.9%), neck (7.1%) and shoulder (4.8%).

Table 4.4: Prevalence of injuries in Sutera Plantation

Injuries	**Yes (%)**	**No (%)**
Experienced injury	42(72.4)	16(27.6)
Injury by body parts		
Eyes	-	42(100)
Head	5(11.9)	37(88.1)
Neck	3(7.1)	39(92.9)
Shoulder	2(4.8)	40(95.2)
Hands	16(38.1)	24(61.9)
Legs	20(47.6)	22(52.4)

n = 58

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4.3.2 Plantation 2: Resort Plantation

In Resort Plantation, 95% of the harvesters who had experienced injury. Similar with Sutera Plantation., the most body parts that experienced injury were hands and legs where the findings shown were 36.8% and 52.6% respectively.

Table 4.5: Prevalence of injuries in Resort Plantation

Injuries	Yes (%)	No (%)
Experienced injury	19(95)	1(5)
Injury by body parts		
Eyes	1(5.3)	18(94.7)
Head	1(5.3)	18(94.7)
Neck	-	19(100)
Shoulder	5(26.3)	14(73.7)
Hands	7(36.8)	12(63.2)
Legs	10(52.6)	9(47.4)

n = 20

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4.3.3 Plantation 3: Nak Plantation

Lastly, from Nak Plantation, the total harvesters were 35 harvesters. Referring to Table 4.6, 85.7% of the harvesters has experienced injury during years of working in the plantation. Again, hands and legs are the body parts that experienced injury the most which the results were 16 (53.3%) and 14 (46.7%) harvesters respectively.

Table 4.6: Prevalence of injuries in Nak Plantation

Injuries	Yes (%)	No (%)
Experienced injury	30(85.7)	5(14.3)
Injury by body parts		
Eyes	2(6.7)	28(93.3)
Head	2(6.7)	28(93.3)
Neck	-	30(100)
Shoulder	4(13.3)	26(86.7)
Hands	16(53.3)	14(46.7)
Legs	14(46.7)	16(53.3)

n = 35

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4.4 Knowledge, Attitude and Practice of Harvesters on Safety Helmet Usage before Implementation of Training

4.4.1 Knowledge

As shown in Table 4.7 regarding harvesters' response on knowledge towards safety helmet usage, the total knowledge score of all 113 harvesters was 84.3%. According to Table 4.8, 83.2% of the harvesters received high score where their marks were above 75%. Meanwhile, 13.3% of the harvesters scored fair marks and 3.5% of them were in the low level as the score is below 50%. In the overall, most of the harvesters get the high score for knowledge level.

Table 4.7: Harvesters' knowledge on safety helmet usage

	Knowledge	Choice of answers	Frequency (%)
1	It is compulsory to wear safety helmet during work	Yes	110 (97.3)
		No	3 (2.7)
		Don't know	-
2	Safety helmet training helps workers to have better understanding on safety helmet usage	Yes	105 (92.9)
		No	4 (3.5)
		Don't know	4 (3.5)
3	Chin strap need to be functioned properly for the safety helmet to perform better	Yes	48 (42.5)
		No	65 (57.5)
		Don't know	-
4	Head injury can lead to death	Yes	96 (85)
		No	12 (10.6)
		Don't know	5 (4.4)

Knowledge		Choice of answers	Frequency (%)
5	Cracked helmet still can be used	Yes	18 (15.9)
		No	87 (77.9)
		Don't know	7 (6.2)
6	Safety helmet must be provided by management	Yes	109 (96.5)
		No	3 (2.7)
		Don't know	1 (0.9)
7	Failure of wearing safety helmet should be fined/compound	Yes	92 (81.4)
		No	10 (8.8)
		Don't know	11 (9.7)

N=113

Table 4.8: Total score of harvesters knowledge on safety helmet usage

Level of knowledge	Frequency (N)	Percentage (%)
High	94	83.2
Fair	15	13.3
Low	4	3.5
TOTAL		100

N = 113

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4.4.2 Attitude

Table 4.9 shown the result of harvesters' response on attitude towards safety helmet usage where their total score was 84.5%. As shown in Table 4.10, majority of the harvesters who made up of 96 out of 113 harvesters scored high mark for the attitude level. This followed by harvesters' who scored fair marks (17 harvesters) and low marks (none). These findings revealed that most of the harvesters had high level of attitude towards safety helmet usage.

Table 4.9: Harvesters' attitude on safety helmet usage

	Attitude	Choice of answers	Frequency (%)
1	I am comfortable with wearing safety helmet in the plantation	Yes	104 (92)
		No	8 (7.1)
		Don't know	1 (0.9)
2	I will wear the safety helmet if prepared by management	Yes	105 (92.9)
		No	6 (5.3)
		Don't know	2 (1.8)
3	I will wear the safety helmet if the management monitored	Yes	61 (54)
		No	51 (45.1)
		Don't know	1 (0.9)
4	I will wear the safety helmet to fulfil the management requirement	Yes	91 (80.5)
		No	21 (18.6)
		Don't know	1 (0.9)
5	I will wear the safety helmet if my colleagues wear it	Yes	34 (30.1)
		No	76 (67.3)
		Don't know	3 (2.7)

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Attitude		Choice of answers	Frequency (%)
6	Interesting design of safety helmet will encourage me to wear the safety helmet	Yes	48 (42.5)
		No	64 (56.6)
		Don't know	1 (0.9)
7	I will feel safe if I am wearing the safety helmet during working	Yes	112 (99.1)
		No	-
		Don't know	1 (0.9)

N=113

Table 4.10: Total score of harvesters attitude on safety helmet usage

Level of attitude	Frequency (N)	Percentage (%)
High	96	85
Fair	17	15
Low	-	-
TOTAL		100

N = 113

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4.4.3 Practice

Lastly, by referring to Table 4.11, the overall score for harvesters' practice towards safety helmet was 98%. Harvesters' practice level was as shown in Table 4.12 where 110 of the harvesters scored high marks. Meanwhile, two harvesters scored fair marks and only single harvesters scored low mark. Overall, most of the harvesters who were 97.3% of them scored high marks for practice towards safety helmet usage.

Table 4.11: Harvesters practice on safety helmet usage

	Practice	Choice of answers	Frequency (%)
1	I wear safety helmet in the plantation	Yes	98 (86.7)
		No	15 (13.3)
		Don't know	-
2	I checked the safety helmet before using it	Yes	109 (96.5)
		No	2 (1.8)
		Don't know	2 (1.8)
3	I am practicing the correct way of safety helmet usage	Yes	104 (92)
		No	8 (7.1)
		Don't know	1 (0.9)
4	I put on the safety chin strap when using safety helmet	Yes	106 (93.8)
		No	7 (6.2)
		Don't know	-
5	I tightened the safety chin strap if loosen	Yes	107 (94.7)
		No	5 (4.4)
		Don't know	1 (0.9)

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Practice		Choice of answers	Frequency (%)
6	I adjusted the safety helmet gear to suit my head size	Yes	106 (93.8)
		No	7 (6.2)
		Don't know	-
7	I advised my colleagues to wear safety helmet	Yes	101 (89.4)
		No	11 (9.7)
		Don't know	1 (0.9)

N = 113

Table 4.12: Total score of harvesters practice on safety helmet usage

Level of practice	Frequency (N)	Percentage (%)
High	110	97.3
Fair	2	1.8
Low	1	0.9
TOTAL		100

N = 113

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4.5 Knowledge, Attitude and Practice of Harvesters on Safety Helmet Usage before Implementation of Training at Each Plantation

4.5.1 Plantation 1: Sutera Plantation

In Sutera Plantation, the overall scores for knowledge, attitude and practice were 82.8%, 84.9% and 97%. Table 4.13 showed that among those 58 harvesters, majority scored marks that were above 75% and less than five were in low level marks.

Table 4.13: Knowledge, attitude and practice level of harvesters in Sutera Plantation

Variable	Frequency (n)	Percentage (%)
Knowledge		
Low	2	3.4
Fair	9	15.5
High	47	81
Attitude		
Low	-	-
Fair	5	8.6
High	53	91.4
Practice		
Low	-	-
Fair	2	3.4
High	56	96.6

n = 58

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4.5.2 Plantation 2: Resort Plantation

There was a total of 20 harvesters in Resort Plantation and their total scores on knowledge were 81.4%, attitude (79.6%) and practice (97.9%). A shown in Table 4.14, results shown were similar with Sutera Plantation where more than half of the harvesters in this plantation obtained high score level on every section assessed in the study.

Table 4.14: Knowledge, attitude and practice level in Resort Plantation

Variable	Frequency (n)	Percentage (%)
Knowledge		
Low	2	10
Medium	4	20
High	14	70
Attitude		
Low	-	-
Medium	9	45
High	11	55
Practice		
Low	-	-
Medium	-	-
High	20	100

n = 20

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4.5.3 Plantation 3: Nak Plantation

Lastly, in Nak Plantation, there was a total of 35 harvesters included in this study. According to Table 4.15, total overall score obtained by harvesters were 90% on knowledge, 86.5% on attitude and 92.7% on practice. The findings showed that majority of them scored high marks in all three sections of knowledge, attitude and practice on safety helmet usage.

Table 4.15: Knowledge, attitude and practice level in Nak Plantation

Variable	Frequency (n)	Percentage (%)
Knowledge		
Low	-	-
Medium	2	5.7
High	33	94.3
Attitude		
Low	-	-
Medium	3	8.6
High	32	91.4
Practice		
Low	1	2.9
Medium	-	-
High	34	97.1

n = 35

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4.6 Difference on Harvesters Knowledge on Safety Helmet Usage before and After Implementation of Training

As the continuous score data is not normally distributed. Non-parametric analysis of Wilcoxon-Signed Rank test was used to compare the result before and after training. According to Table 4.16, it was shown the result of p value for the knowledge scores of 113 palm oil harvesters towards safety helmet usage between before and after implementation of training which was 0.02. The p value was less than 0.05 which shown that there was a significance difference between harvesters' knowledge during the pre-test and post-test. Thus, the hypothesis on this objective is accepted.

Table 4.16: Difference on knowledge of safety helmet usage before and after implementation of training

Variable	Median (IQR)		Z-statistics	p-value*
	Before	After		
Knowledge	13 (11, 13)	13 (12, 13)	-3.040	0.02

*p-value significant at 0.05 level

*Wilcoxon-signed rank test

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4.7 Difference on Harvesters Practice on Safety Helmet Usage before and after Implementation of Training.

In observing the practice item of safety helmet usage for posttest, only 30 harvesters were chosen due to weather and time limitation. Referring to Table 4.17, it had shown the p-value for two practice items in observing the workers usage of safety helmet in plantation after training implementation. Both items have the p value of 0.391 and 0.526. The value is more than 0.05 thus showed that there is no significance differences between before and after implementation of training on practice of safety helmet usage. Therefore, the hypothesis for this objective is rejected.

Table 4.17: Difference on practice of safety helmet usage before and after implementation of training

Practice item	Frequency (%)		p-value
	Yes	No	
Wearing safety helmet in plantation			
Before	28 (93.3)	2 (6.7)	0.391
After	16 (53.3)	14 (46.7)	
Wearing chin strap			
Before	27 (90)	3 (10)	0.526
After	8 (26.7)	22 (73.3)	

n = 30

CHAPTER 5

DISCUSSION

5.1 Socio-Demographic Background of Harvesters

A total of 113 harvesters were included in this study from three plantations (Sutera, Nak and Resort Plantations) in Sandakan, Sabah. All of the harvesters in this study are Indonesian. Among them, 76.1% of them are from the race of Bugis, 8% are from Suluk and 4.4% of them from Timur. This is in agreement with statistics that stated regarding plantations in Malaysia that mainly used manpower of foreigners which they made about 69% of the plantation workers while local people is only 31% of them (Abdullah, 2010).

The results show that more than half of the harvesters had their formal education until primary level which was 59.3% and 23.9% had none. Only small number of the harvesters can recognize words and read. The rest of them required assistance to read sentences in answering the questionnaire. The questionnaire was in bilingual which are Bahasa Malaysia and Indonesian language

Large number of the harvesters has less than 10 years of experience in respective plantations. According to Zolkifli (2016), lack of working years in the field

resulted with workers who have less exposure to injury compare to workers that have experienced for more than 20 years in plantation.

5.2 Prevalence and Causes of Injuries among Palm Oil Harvesters

The findings of prevalence and causes of injuries information reported that 91 of the palm oil harvesters who have experienced injuries out of 113 harvesters. It is reported that agricultural workers are known to have high rate of injuries compared to other divisions. This is because daily laborers such as workers in plantation and temporary workers are more exposed to risk of injury. This study also suggested that provision of safe working environment for these workers should not be argue among the organization to ensure their safety and health (Yiha & Kumie, 2010).

The body part that injured the most were hands and legs due to no specific PPE to protect that part of body. This is in agreement with a report stating that 30% of hand injuries that occurred were due to inadequate or misused of hand protection (Vatanparast, 2016). According to Occupational Safety and Health Administration (2011), workers who exposed great amount of skin might increase the likelihood on the risk of getting cut and burned, hit by sharp objects, hot surfaces and substances.

The main causes of injuries among workers were reported due to palm fronds thorns by 67 harvesters out of 91 harvesters that had experienced injuries. Sharp thorns of palm fronds may seem harmless, but it can puncture through the skin and causing bacterial and skin infections. This type of injury usually needs medical attention as

wound inflammation will be worsened if no treatment is given (Rudnicki, 2018). According to Yiha & Kumie study in 2016, the factors contributing to occurrence of injuries among agricultural workers were due to lack of workplace supervision, safety and health training, lack of PPE usage, long hours of working and being a daily laborer.

5.3 Prevalence of Injuries According to Plantations

The findings for prevalence of injuries according to plantation were shown that Sutera Plantation, out of 58 harvesters, 42 of them has experienced injury and the body parts that get injured the most were hands and legs. Meanwhile in Resort Plantation, there was a total of 20 harvesters and 19 of them has encountered injuries before. Lastly, 30 out of 35 harvesters in Nak Plantation has experienced injuries before.

Most harvesters in respective plantation has experienced injuries despite their less years of working experience. According to harvesters' socio-demographic data, it was shown that almost 90% of the harvesters' age was from 21 until 69 years old. This is in line with a previous study reported that workers among age of 28 until 47 had the highest accident rates (Root, 1981). A report also stated that human errors that led to injury are not consider as the main causes but as a consequences. This is because errors are molded from the top management with organization factors and by understanding the reason of error then the re-occurrence can be prevented (Hosier, 2015).

Plantations injuries prevalence result revealed that most affected body areas were hands and legs. According to Layne & Landen (1997), hands and fingers were

the most commonly injured (35.1%), followed by shoulder and arm (16.5%), head and neck (16.3%) in a study on non-fatal occupational injuries. This is supported by another study by Adnan (2016), revealed that highest injuries occurred at legs (72.1%) and hands (55.7%) too. The body parts area that most likely to get injured due to movements while working. In addition, workers usage of hand tools and lack of safety precautions also explained the injury situation (Yiha & Kumie, 2010).

5.4 Knowledge, Attitude and Practice of the Harvesters on Safety Helmet Usage before Implementation of Training.

Based on the evaluation of harvesters' knowledge regarding safety helmet usage, there were 94 harvesters who score high marks on the pretest, 15 harvesters scored fair marks and 4 harvesters scored low marks. This is in support of a study reported that most harvesters have the basis knowledge of using safety helmet during work however lack in practice of it in the field (Zolkifli, 2016). Since all of the harvesters are Indonesian, instructions and questionnaires were translated in their language and talks were delivered in layman terms to match their level of understandings.

Evaluation of harvesters' knowledge showed that they understand and well aware that it is compulsory to wear the safety helmet during working in field. This is because 110 harvesters answered positively on this question item. This is in line with regulation in Occupational Safety and Health Act (OSHA) 1994, Section 24. (1) declare that "It shall be the duty of every employee while at work: (c) to wear or use

at all times any protective equipment or clothing provided by the employer for the purpose of preventing risks to his safety and health". A study from Hu (1998), also reported that employers are aware of their responsibility in giving safety warnings and provide personal protective equipment. This illustrated that employer managed to deliver the safety related message well to harvesters and able to make them understand the importance of using safety helmet during working.

The findings of harvesters' attitude items revealed a large number of harvesters scored high marks in this section which are 96 harvesters and the other 17 harvesters scored fair marks. Meanwhile, 112 harvesters also agreed that wearing safety helmet during working makes them feel safe. This is in consistent with a survey carried out by American Bureau of Labor Statistics in 2011 which found that workers who find safety hats practical for their jobs had been wearing safety hats all and most of the time during working. A previous study also stated that attitude importance is not based on how it was expressed mentally but subjectively. This is because it involve strength of cognitive links between attitude and the person itself (Eaton & Visser, 2008).

As per discussed above on attitude items, 105 of the harvesters had also agreed that safety helmet should be prepared by management instead of using harvesters' own money. This is in support of legal statement in OSHA 1994, Section 26 stated that " No employer shall levy or permit to be levied on any employee of his any charge in respect of anything done or provided in pursuance if this Act or regulation". In other words, Guidelines on OSHA explained that employee were not required to pay for personal protective equipment and employees' welfare facilities.

Result from responses of practice items showed 110 harvesters scored high marks while the other two harvester scored fair marks and only one harvesters scored low mark. 98 harvesters out of 113 responded that they wear the safety helmet in plantation. There are workers that are not willing to wear safety helmet because the helmet are not comfortable to them (Hsu, 2000). It may due to factors such as acceptability of head protection at work where include the properties of helmets, fits degree, size and shape and visual factors (Hickling, 1986).

106 harvesters also responded that they put on chin strap during working and the other seven responded otherwise. Chin strap is important for securing the helmet firmly on workers' head as it is also at risk to be blown away (Chawla, 2016). However, some workers might find it uncomfortable as they are working in tropical countries, chin strap might cause extra discomfort due to excessive sweating and high temperature during working (Shishodia, 2016).

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5.5 Knowledge, Attitude and Practice of Harvesters on Safety Helmet Usage before Implementation of Training at Each Plantation

In all of the plantations included in this study, which were Sutera, Resort and Nak Plantation, all of the harvesters in respective plantations mostly scored more than 80% in knowledge, above 79% in attitude and above 92% in practice of safety helmet usage during working. This findings shows that their knowledge, attitude and practice (kap) level are already good at the first place. This objective was made to find out the distribution of kap level among harvesters at each plantation. More than 70% of the harvesters in all three plantations have at least primary and secondary level of education. This explained the good level of knowledge, attitude and practice among them. This is because educations helps in determining their level of understanding and ease the process of learning again (Hewlett, 2014).

The high score results on each section of kap showed that each plantation management have delivered safety related messages in the understandable way. This is in support with a study revealed that safety and health training served as a mechanism of protection for the workers and encourage the works to report any injuries occur during work (Riley & Morier, 2015). Previous findings of case study also revealed that safety training closely related with compliance, participation and involvement of workers towards any safety requirement from management (Shehu, Subramaniam & Johari, 2016).

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5.6 Difference on Harvesters Knowledge on Safety Helmet Usage before and After Implementation of Training

Results for difference on harvesters' knowledge score between before and after implementation of training revealed that there is a significance difference between them and the hypothesis is accepted. This is supported by a study that revealed workers total knowledge score had increased after training was given (Seewooruttun, 2014). Training is defined as an activity that is planned thoroughly and systematically to improve skills, knowledge and competency level that needed to perform work efficiently (Rana, 2016). The result obtained is in agreement with a study reported that training had proven to generate employee's performance through their knowledge, skills and competencies development (Nassazi, 2013). This is one the reason why interventions had been aiming in increasing one's knowledge and has high expectation in demonstrating positive influence towards the target population (Seewooruttun, 2014).

A resource manual of Preventing Workplace Injuries from Nova Scotia, Canada published in 2015 described knowledge information that includes awareness of workplace health and safety are the easiest to achieve as it is the simplest way to deliver information to the workers. As one knowledge on safety helmet usage is improved through training, it helps in avoiding unsafe behaviors. Previous study on intervention to improve knowledge, attitude and practice of food handlers revealed that there was a significant improvement in food safety knowledge after the intervention was introduced as $p<0.05$ (Dudeja, et al., 2016).

According to the findings of injuries prevalence, only 8 harvesters had head injury among 91 harvesters who had experienced injuries during working in plantations. In line with these findings, a report revealed that organizations were able to prevent accidents and keep up with good records through practicing the safety culture in maintaining great working environments will lead to performance development (Newstrom, 2002).

The significance result is also supported by a study on determining the relative effectiveness of workers' safety and health training methods has aimed in improving safety knowledge and performance and reducing negative outcome such as accidents, illnesses and injuries. Results after the training implementation revealed that workers demonstrated greater knowledge acquisition, and there are reduction in accidents, illnesses and injuries. Training that includes behavioral modelling and substantial amount of practice were claimed to be generally more effective than other methods of safety and health training (Burke, Sarpy & Smith-Crowe et. al, 2006).

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5.7 Difference on Harvesters Practice on Safety Helmet Usage before and after Implementation of Training.

In comparing the two practice items of safety helmet usage during before and after implementation of training, only 30 harvesters were chosen instead of 113 harvesters. This is because there were difficulties arouse such as weather and time limitation in observing all of them during the study period. The findings showed that there are no significance differences on both practice items between before and after training session, thus the hypothesis for this objective is rejected. Practice item observed were regarding wearing safety helmet and chin strap. The trends decreased on the post-test result as most harvesters did not put on both safety helmet and chin strap.

Earlier in pretest, 28 harvesters responded that they wear the safety helmet during work. However, after the intervention, the number decreased to 16 during field observation. Same goes to chin strap usage, 27 out of 30 harvesters claimed that they put on chin strap while working but during observation, only 8 of them were shown putting on the chin strap properly during cutting palm oil fruits. These findings are in contrast with a report stated that management of practice will enhance workers performance and participation in their work responsibilities (Ichniowski, 1997). In addition, previous case studies also revealed that post-test score of Knowledge, Attitude and Practice (KAP) study on hypertension management was higher than pre-test which shows the intervention implemented was a success (Roopa, 2017).

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Although management has emphasized on safety helmet usage, harvesters practice on it still had to be improved. This is actually in line with the findings in attitude level in pre-test where 54% responded that they will only wear the safety helmet when management supervised and 80.5% responded that use of safety helmet was to fulfil the management requirement. Harvesters have the tendency to declare that they will comply by wearing safety helmet and chin strap in pre-test but does not practice it when they knew no one will be observing (Zolkifli, 2016).

Field observation was conducted on the same group of harvesters without informing them. This is in consistent with a study that revealed that individuals' words are actually different from what they actually mean. Opponent or the other party should give more attention on actions instead of words because observation is more effective (Haiman, 1998). Previous report revealed that workers tend to remove their helmet when the weather is uncomfortably hot and if they experienced any discomfort when using the safety helmet (Adnan et al., 2016).

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CHAPTER 6

CONCLUSION, LIMITATION AND RECOMMENDATION

6.1 Conclusion

In conclusion, this study revealed that more than half from 113 harvesters involved in this study were considered have high knowledge (84.8%), attitude (84.5%) and practice (98%) of safety helmet usage. There was a significance difference on harvesters' knowledge between before and after implementation of training ($p<0.05$) where overall post-test score was higher than pre-test. This shows that intervention through training session helps in increasing the harvesters' knowledge. However, there is no association on practice item between before and after intervention ($p>0.05$). For prevalence of injuries, the most injured body parts among harvesters were hands (42.9%) and legs (48.4%) while the main cause of those injury were due to hit by palm fronds thorns (70.3%).

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6.2 Limitation

There was limitations encountered by researcher during carrying out this project. During observation in plantation field, rain pours throughout the night makes it harder to enter the block in the morning as the road was wet. Due to the situation, researcher were only able to observe 30 harvesters for their practice of safety helmet usage in the plantation field.

6.3 Recommendation

Despite the findings of this study, regular briefing and supervision should be maintained by management to ensure the harvesters always wear safety helmet during harvesting work. Besides, regular awareness program will also help in promoting safety work culture in pal oil plantations. Intervention done on this study could be improvise by extending the intervention period to observe each harvesters' safety helmet practice in field after implementation of training. The training module should be improvised if future studies aimed in increasing the practice of safety helmet usage among harvesters. Researcher shall plan project timeline by considering distance of each plantation block, weather and time management. Issues on injuries need to be further looked into as most of the injuries occurred were due to palm fronds thorns. It is recommended to collect more data on plantation related injuries and improve current preventive measures to reduce accidents in plantations.

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APPENDICES

Appendix I

(Ethical Approval Letter)

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ETHICS COMMITTEE FOR RESEARCH INVOLVING HUMAN SUBJECTS
(JKEUPM)
UNIVERSITI PUTRA MALAYSIA

Research title	:	**Knowledge and Practice of Safety Helmet Usage Among Palm Oil Harvesters in Sandakan, Sabah**
Study Site	:	**Sandakan, Sabah**
JKEUPM Ref No.	:	**JKEUPM-2017-199**
Researcher	:	**Siti Nur Atika Yap bt Muhamad Taufik Yap**
Supervisor	:	**Assoc Prof. Dr. Shamsul Bahri Md Tamrin**

Documents received and reviewed with reference to the above study:

1. Ethics Application Form, Version 1 dated 31/10/2017
2. Respondent Information Sheet & Consent (English), Version 2 dated 24/11/2017
3. Respondent Information Sheet & Consent (Malay), Version 2 dated 24/11/2017
4. Respondent Information Sheet & Consent (Indonesia), Version 2 dated 24/11/2017
5. Proposal (English), Version 2 dated 9/1/2018
6. Questionnaire (Malay), Version 2 dated 24/11/2017
7. Questionnaire (Indonesia), Version 2 dated 24/11/2017
8. Curriculum Vitae of:
    a. Assoc Prof. Dr. Shamsul Bahri Md Tamrin
    b. Dr. Ng Yee Guan

The University Research Ethics Committee, Universiti Putra Malaysia (JKEUPM) operates in accordance to the ICH-GCP Guidelines.

Decision by JKEUPM:

[X] **Approved**

[X] **Permission MUST BE OBTAINED from the respective hospitals/ institutions before conducting the research**

[ ] **Disapproved**

Please note that the approval is VALID UNTIL 19 JANUARY 2019

Researchers should comply with the following:

I. Complete a Study Final Report upon study completion (Form 3.2).

Appendix II

(Ethical Consent Form)

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JAWATANKUASA ETIKA UNIVERSITI UNTUK PENYELIDIKAN MELIBATKAN MANUSIA (JKEUPM) UNIVERSITI PUTRA MALAYSIA, 43400 UPM SERDANG, SELANGOR, MALAYSIA

UPM
UNIVERSITI PUTRA MALAYSIA

BORANG 2.4: PENERANGAN DAN PERSETUJUAN RESPONDEN

Sila baca maklumat berikut dengan teliti. Sekiranya anda mempunyai sebarang pertanyaan, sila kemukakan kepada penyelidik.

1.TAJUK KAJIAN

Perhubungan pengetahuan dan amalan penyabit kelapa sawit terhadap penggunaan topi helm ketika sebelum dan selepas latihan di Sandakan, Sabah.

2. PENGENALAN

Daripada Jabatan Keselamatan dan Kesihatan Pekerjaan Malaysia (DOSH), menyatakan bahawa Januari hingga Ogos 2016, jumlah kasus kematian di kalangan sektor pertanian adalah yang ketiga tertinggi selepas Pembinaan dan Pembuatan Sektor. Jumlah kes hilang upaya kekal di kedudukan nombor dua untuk Sektor Pertanian yang terikat dengan Kewangan, Insurans, Hartanah dan Sektor Perkhidmatan Perniagaan. Sektor pertanian juga mencatat kedudukan di tangga kedua dalam kasus-kasus kecacatan tidak tetap selepas Sektor Pembuatan. Ini menunjukkan bahawa kelaziman kecederaan dalam sektor pertanian masih bebas. Ini boleh dikaitkan dengan peningkatan kelaziman kecederaan di kalangan ladang kelapa sawit. Terdapat banyak faktor yang boleh menyebabkan kecederaan kepada pekerja-pekerja di ladang kelapa sawit seperti jatuh buah-buahan, faktor persekitaran, pengendalian yang tidak betul pahat, Gangguan Muskuloskeletal (MSDS) dan lain-lain. Oleh itu, salah satu daripada kaedah pencegahan bagi kecederaan ini adalah dengan menggunakan Peralatan Perlindungan Peribadi (PPE) seperti helm keselamatan. Kelaziman pemakaian topi helm keselamatan dalam kalangan penyabit kelapa sawit tidak begitu jelas kerana tidak mempunyai rekod kukuh mengenai kajian seperti ini.

3. APAKAH YANG PERLU ANDA LAKUKAN?

Peserta perlu menjawab soal selidik sebelum dan selepas yang akan digunakan untuk mengumpul data demografi sosial seperti (umur, suku bangsa, status kawin, tingkat pendidikan serta gaji bulanan), pengetahuan, sikap dan amalan terhadap penggunaan topi helm, informasi pekerjaan serta informasi kecederaan.

Penglibatan dalam kajian ini adalah secara sukarela, peserta bisa menolak atau menarik diri tanpa ada sebarang denda atau aduan dikenakan kepada pihak atasan.

4. SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?

Pengurus ladang dan majikan

5. APAKAH FAEDAH MENYERTAI KAJIAN INI?

a) KEPADA ANDA SEBAGAI PESERTA?

Peserta bisa ketahui kepentingan menggunakan topi helm di tempat kerja serta hubung kaitnya dengan kecederaan. Selain itu, peserta bisa mengenal cara menggunakan topi keselamatan dengan betul serta bagaimana caranya mengelak serta melindungi diri daripada bahaya di tempat kerja.

b) KEPADA PENYELIDIK?

Penyelidik bisa menyumbang suatu penyelidikan yang amat berguna kepada Universiti Putra Malaysia khususnya dan kepada negara Malaysia. Selain itu, penyelidik bisa membuktikan hubungan antara pengetahuan dan tingkah laku pekerja terhadap penggunaan topi helm keselamatan antara sebelum dan selepas sesi latihan diberikan.

6. ADAKAH IA BERISIKO?

Sepanjang sesi soal selidik, ada kemungkinan risiko psikologis yang minimal bakal muncul seperti kebingungan serta ketidakpastian dalam menjawab pertanyaan saat peserta tidak sepenuhnya mengerti soalan-soalan yang dikemukakan.

7. ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Ya. Semua maklumat serta identiti peserta pasti dirahsiakan.

8. SIAPA YANG SAYA PERLU HUBUNGI SEKIRANYA SAYA MEMPUNYAI SOALAN TAMBAHAN SEMASA MENGIKUTI PENYELIDIKAN INI?

Prof. Madya. Dr. Shamsul Bahri Hj Mohd Tamrin,
Jabatan Kesihatan Persekitaran dan Pekerjaan,
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Siti Nur Atika Yap Binti Muhammad Taufik Yap,
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No. Telefon: 010-2289318
Emel: tika20595@gmail.com

Sila tandatangan di sini sekiranya anda telah membaca dan memahami kandungan halaman ini _____

9. PERSETUJUAN

Saya..... No Kad Pengenalan. .....
beralamat.....
.....dengan ini bersetuju untuk mengambil bahagian secara sukarela dalam penyelidikan yang tersebut di atas *(kajian klinikal/percubaan ubat-ubatan/rakaman video/kumpulan sasaran/temuduga/ soal selidik).

Saya telah diberi penjelasan secara menyeluruh mengenai penyelidikan ini dari segi metodologi, risiko dan komplikasi (seperti tertulis pada Helaian Penerangan Responden). Saya memahami bahawa saya berhak menarik diri dari penyelidikan ini pada bila-bila masa tanpa memberi sebarang alasan.Saya juga memahami bahawa sebarang maklumat yang berkaitan identiti saya akan dirahsiakan.

Saya* berminat / tidak berminat untuk mengetahui keputusan kajian yang melibatkan saya.

I setuju/tidak bersetuju untuk imei/gambar/rakaman video/ rakaman suara digunakan dalam apa jua bentuk penerbitan atau pembentangan. (sekiranya berkaitan).

*potong yang tidak berkenaan

Tandatangan .....
(*Responden*)

Tarikh :.....

Tandatangan .....
(*Saksi*)

Nama :.....

No. K/P: .....

Saya mengesahkan bahawa saya telah menerangkan kepada responden ini sifat dan tujuan penyelidikan yang tersebut di atas.

Tarikh .....

Tandatangan .....
(*Penyelidik*)

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Appendix III

(Questionnaires)

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PRE – QUESTIONNAIRE

"Pengetahuan dan tingkah laku pengait kelapa sawit terhadap penggunaan topi keselamatan di Sandakan, Sabah."

"Pengetahuan dan amalan penyabit kelapa sawit terhadap penggunaan topi helm di Sandakan, Sabah."

No. ID : ☐☐☐

Organisasi : Ladang Sutera ( )
Ladang Resort ( )
Ladang Nak ( )

Tarikh : .....

ARAHAN SOALAN:

1. Borang soal selidik ini mengandungi TIGA (3) bahagian iaitu:

   Bahagian A: Pengetahuan Penggunaan Topi Keselamatan

   Bahagian B: Sikap Penggunaan Topi Keselamata

   Bahagian C: Tingkah Laku Penggunaan Topi Keselamatan

2. Anda diminta untuk menjawab semua soalan yang ada di dalam buku ini

3. Untuk menjawab, sila tandakan jawapan di ruangan kosong yang telah disediakan

4. Borang soal selidik hendaklah dikembalikan kepada pengkaji setelah selesai menjawab semua soalan

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BAHAGIAN A: PENGETAHUAN PENGGUNAAN TOPI KESELAMATAN

Petunjuk : Sila beri tanda (√) pada ruangan yang berkenaan.
Skor :

1 = Ya
2 = Tidak
3 = Tidak tahu

No	Item pengetahuan	Ya	Tidak	Tidak tahu
1.1	Penggunaan topi keselamatan adalah wajib semasa bekerja *Wajib memakai topi keselamatan saat jam kerja*	1	2	3
1.2	Latihan penggunaan topi keselamatan membantu pekerja memahami cara pemakaian dengan betul *Latihan penggunaan topi keselamatan membantu anda memahami bagaimana menggunakan topi keselamatan dengan baik*	1	2	3
1.3	Tali dagu keselamatan tidak perlu berfungsi sepenuhnya untuk menetapkan kedudukan topi keselamatan *Keselamatan pengikat dagu tidak benar-benar diperlukan untuk mengatur posisi topi keselamatan*	1	2	3
1.4	Kecederaan kepala boleh membawa maut *Cedera kepala bisa mengakibatkan maut*	1	2	3
1.5	Topi keselamatan yang retak / berlubang masih boleh digunakan *Topi keselamatan dengan retakan / lubang masih bisa digunakan*	1	2	3
1.6	Penyediaan topi keselamatan perlu dilakukan oleh pihak pengurusan *Persiapan topi keselamatan harus dilakukan oleh manajemen*	1	2	3
1.7	Gagal memakai topi keselamatan perlu dikenakan denda / kompaun *Gagal memakai topi keselamatan harus didenda / kompaun*	1	2	3

BAHAGIAN B: SIKAP PENGGUNAAN TOPI KESELAMATAN

Petunjuk : Sila beri tanda (√) pada ruangan yang berkenaan.

Skor :

1 = Ya
2 = Tidak
3 = Tidak tahu

No	Item sikap	Ya	Tidak	Tidak tahu
2.1	Saya selesa memakai topi keselamatan. *Saya nyaman memakai topi keselamatan*	1	2	3
2.2	Saya akan memakai topi keselamatan sekiranya pihak pengurusan menyediakannya *Saya akan memakai topi keselamatan jika manajemen menyediakannya*	1	2	3
2.3	Saya akan memakai topi keselamatan sekiranya pihak pengurusan melakukan pemantauan *Saya akan memakai topi keselamatan jika manajemen melakukan pemantauan*	1	2	3
2.4	Saya memakai topi keselamatan untuk memenuhi kehendak pengurusan ladang *Saya memakai topi keselamatan untuk memenuhi kebutuhan pengelolaan usahatani*	1	2	3
2.5	Saya akan memakai topi keselamatan sekiranya rakan sekerja saya memakai topi keselamatan *Saya akan memakai topi keselamatan jika rakan saya memakai topi keselamatan*	1	2	3
2.6	Reka bentuk topi keselamatan yang menarik membuat saya berminat untuk memakainya *Desain menarik topi keselamatan membuat saya tertarik untuk memakainya*	1	2	3
2.7	Saya rasa lebih selamat sekiranya saya memakai topi keselamatan semasa waktu bekerja *Saya merasa lebih aman jika memakai topi keselamatan saat jam kerja*	1	2	3

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BAHAGIAN C: TINGKAH LAKU PENGGUNAAN TOPI KESELAMATAN

Petunjuk : Sila beri tanda (√) pada ruangan yang berkenaan.

Skor :

1 = Ya
2 = Tidak
3 = Tidak tahu

No	Item tingkah laku	Ya	Tidak	Tidak tahu
3.1	Saya memakai topi keselamatan di ladang *Saya memakai topi keselamatan di lapangan*	1	2	3
3.2	Saya memeriksa topi keselamatan sebelum digunakan *Saya periksa topi keselamatan sebelum digunakan*	1	2	3
3.3	Saya mempratikkan penggunaan topi keselamatan dengan betul *Saya mempraktikkan penggunaan topi keselamatan dengan benar*	1	2	3
3.4	Saya memakai tali dagu keselamatan *Saya memakai pelindung tali dagu*	1	2	3
3.5	Saya mengetatkan tali dagu keselamatan sekiranya longgar *Saya mengencangkan tali dagu jika longgar*	1	2	3
3.6	Saya menyesuaikan ukuran pengancing agar muat untuk dipakai *Saya mengencangkan pelaras jika longgar*	1	2	3
3.7	Saya menasihati rakan-rakan untuk memakai topi keselamatan *Saya menyarankan teman untuk memakai topi keselamatan*	1	2	3

TERIMA KASIH

POST – QUESTIONNAIRE

"Pengetahuan dan tingkah laku pengait kelapa sawit terhadap penggunaan topi keselamatan di Sandakan, Sabah."

"Pengetahuan dan amalan penyabit kelapa sawit terhadap penggunaan topi helm di Sandakan, Sabah."

No. ID : ☐☐☐

Organisasi : Ladang Sutera ( )
Ladang Resort ( )
Ladang Nak ( )

Tarikh : .....

ARAHAN SOALAN: *:*

1. Borang soal selidik ini mengandungi EMPAT (4) bahagian iaitu:

   Bahagian A: Informasi Peribadi

   Bahagian B: Informasi Pekerjaan

   Bahagian C: Pengetahuan Penggunaan Topi Keselamatan

   Bahagian D: Informasi Kecederaan

2. Anda diminta untuk menjawab semua soalan yang ada di dalam buku ini

3. Untuk menjawab, sila tandakan jawapan di ruangan kosong yang telah disediakan

4. Borang soal selidik hendaklah dikembalikan kepada pengkaji setelah selesai menjawab semua soalan

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BAHAGIAN A: INFORMASI PERIBADI

Sila berikan informasi berkenaan informasi peribadi anda

A 1	Umur *Umur*	..... tahun
A 2	Bangsa *Suku Bangsa*	.....
A 3	Status Perkahwinan *Status Kawin*	1. Bujang / *Bujang* 2. Bernikah / *Berkahwin* 3. Bercerai / *Bercerai*
A 4	Status Pendidikan *Tingkat Pendidikan*	1. Tidak Sekolah / *Tidak sekolah* 2. Dasar / *Rendah* 3. Menengah / *Menengah*
A 5	Pendapatan Bulanan *Gaji*	RM .....

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BAHAGIAN B: INFORMASI PEKERJAAN

Sila berikan informasi berkenaan maklumat pekerjaan anda

B 1 Berapa lamakah anda telah bekerja di dalam ladang? _____ tahun
Sudah berapa lama kamu bekerja di ladang?

B 2 Adakah anda ada diberikan sebarang peralatan perlindungan diri (PPE) untuk digunakan ketika bekerja?
Apakah anda diberikan alat perlindungan diri buat digunakan saat lagi bekerja?

1. Ya ☐
2. Tidak ☐

B 3 Adakah anda menggunakan peralatan perlindungan diri (PPE) yang diberikan sepanjang bekerja?
Apakah anda ada memakai alat perlindungan diri yang diberikan tersebut?

1. Ya ☐
2. Tidak ☐

B 4 Sila tandakan jenis peralatan perlindungan diri (PPE) yang digunakan
Silakan tanda alat perlindungan diri yang diberikan oleh manajemen

1. Kasut keselamatan ☐
2. Topi keselamatan ☐
3. Cermin mata ☐
4. Sarung tangan ☐

Lain- lain

_____

B 5 Adakah terdapat latihan bagi menggunakan peralatan perlindungan diri diberikan?
Apakah terdapat latihan bagi menggunakan alat perlindungan diri diberikan?

1. Ya ☐
2. Tidak ☐

B 6 Adakah anda hadir bagi setiap taklimat atau latihan penggunaan peralatan perlindungan diri (PPE) diberikan?
Apakah anda hadir bagi setiap taklimat yang diberikan?

1. Ya ☐
2. Tidak ☐

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BAHAGIAN C: PENGETAHUAN PENGGUNAAN TOPI KESELAMATAN

Petunjuk : Sila beri tanda (√) pada ruangan yang berkenaan.
Skor :

1 = Ya
2 = Tidak
3 = Tidak tahu

No	Item pengetahuan	Ya	Tidak	Tidak tahu
C 1	Penggunaan topi keselamatan adalah wajib semasa bekerja *Wajib memakai topi keselamatan saat jam kerja*	1	2	3
C 2	Latihan penggunaan topi keselamatan membantu pekerja memahami cara pemakaian dengan betul *Latihan penggunaan topi keselamatan membantu anda memahami bagaimana menggunakan topi keselamatan dengan baik*	1	2	3
C 3	Tali dagu keselamatan tidak perlu berfungsi sepenuhnya untuk menetapkan kedudukan topi keselamatan *Keselamatan pengikat dagu tidak benar-benar diperlukan untuk mengatur posisi topi keselamatan*	1	2	3
C 4	Kecederaan kepala boleh membawa maut *Cedera kepala bisa mengakibatkan maut*	1	2	3
C 5	Topi keselamatan yang retak / berlubang masih boleh digunakan *Topi keselamatan dengan retakan / lubang masih bisa digunakan*	1	2	3
C 6	Penyediaan topi keselamatan perlu dilakukan oleh pihak pengrusan *Persiapan topi keselamatan harus dilakukan oleh manajemen*	1	2	3
C 7	Gagal memakai topi keselamatan perlu dikenakan denda / kompaun *Gagal memakai topi keselamatan harus didenda / kompaun*	1	2	3

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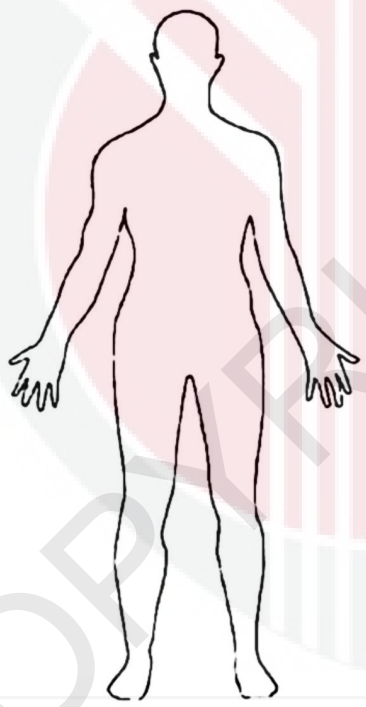
BAHAGIAN D: INFORMASI KECEDERAAN

No	Item	Ya	Tidak	Tidak tahu
D 1	Adakah kamu pernah cedera sepanjang bekerja di ladang? *Apakah kamu pernah cedera sepanjang pekerjaan di ladang?*	1	2	3

D 2 Anggota tubuh manakah yang pernah cedera?
Anggota tubuh manakah yang pernah cedera?

Jika tiada di dalam pilihan, sila bulatkan bahagian kecederaan anda di gambar berikut.
Jika bahagian cedera tiada di dalam pilihan, sila bulatkan bahagian tersebut di diagram berikut.



1. Kepala
2. Mata
3. Bahu
4. Leher

Lain-lain

_____

D 3 Apakah punca kecederaan anda?
Apakah punca kecederaan anda?

1. Buah jatuh di kepala
2. Penggunaan sabit saat bekerja
3. Bahaya di persekitaran

Lain-lain

_____

TERIMA KASIH

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