UNIVERSITI PUTRA MALAYSIA

PERCEPTION TOWARDS SAFETY AND HEALTH IN THE AGRICULTURE SECTOR AND ASSOCIATED FACTORS AMONG OLDER FARMERS IN PERAK AND JOHOR, MALAYSIA

NABILAH LATIF

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NABILAH LATIF

MASTER OF SCIENCE
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By

NABILAH LATIF

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfillment of the Requirements for the Degree of Master of Science.

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Master of Science

PERCEPTION TOWARDS SAFETY AND HEALTH IN THE AGRICULTURE SECTOR AND ASSOCIATED FACTORS AMONG OLDER FARMERS IN PERAK AND JOHOR, MALAYSIA

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NABILAH LATIF

February 2014

Chair: Anita Abd Rahman, M.D, M. Comm. Health (OH)
Faculty: Institute of Gerontology

Safety and health problems at the workplace have always been a major issue especially to the high risk and dangerous hazards exposure like in the agricultural sector. Previous researchers found that understanding the perception on workplace safety and health among the farmers lead to identification of factors related to process of accidents and somehow reduces the problems. This cross sectional study was designed to determine the workplace safety and health problems and concurrently ascertain the association between older farmer's perception on workplace safety and the risk factors involved among them.

As the states of Perak and Johor contribute the highest number of district farmers association, a total of 164 older farmers age 45 years old and above were chosen from five associations from each states based on proportionate sampling, giving a response rate of 97.6%. A set of questionnaire which comprised of respondent's demographic background, inclusive of questionnaire to identify specifically the safety and health problem together with a validated questionnaire of 50-item Work Safety Scale (WSS) which had a good Cronbach alpha of 0.887 to 0.993 to measure perception on safety was used for data collection during the face to face interview. Data was then analyzed using SPSS Version 19. Respondents were grouped into low and high perception group based on their total scores on the ten items of each of the WSS.

It was found that, majority of respondents were male (78.0%), married (87.2%), possess primary education (49.4%), land owners (62.2%), have been working more than 30 years in agricultural sectors (66.5%) and low income earners of less than RM3,000 (84.1%). Vision and musculoskeletal problems were the major health problems contributing approximately 63% and 60% respectively while for safety problems, fall contributed the highest percentage (39.6%). Five factors were found to

be significantly associated with safety problems; age (χ^2=18.871,p<0.01), education level (χ^2=11.699,p=0.003), job tenure (χ^2=20.131,p<0.01), monthly income (χ^2=5.748, p=0.017), and the perception on job safety (χ^2=6.898,p=0.009) while for health problems, four factors were significantly associated such as age (χ^2=7.771,p=0.021), job categories (χ^2=5.875,p=0.015), perception on job safety (χ^2=5.332,p=0.021) and coworkers safety (χ^2=5.884,p=0.031). Further analysis using logistic regression test for the significant variables showed the entire above factor were significant towards safety problem where age (p<0.01) and job tenure (p=0.014) was more likely to contribute to safety problems (age; OR=8.497, 95% CI: 3.532–20.446, job tenure; OR=4.016, 95% CI: 1.318–12.235). However for health problem, age was non significant factors (OR=3.151, 95% CI: 0.814–12.198) while job category (OR=0.346, 95% CI= 0.118-0.932), perception on job safety (OR=0.200, 95% CI= 0.040-0.990) and perception on coworkers safety (OR=0.409, 95% CI= 0.192-0.868) were found to be the protective factors for health problems.

Consistent with previous studies, this research has shown that age is an important risk factor especially for safety problems among older farmers. In conclusion, safety and health problems among older farmers had mixed association with age, job tenure, income, perception on job safety and coworker's safety. It also has given some insight on the status of safety and health among the respondents. With the problems and perception of safety and health has been identified among the agricultural sectors, the study will help future research to provide appropriate recommendations to improve the workplace safety and health.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

PERSEPSI TERHADAP KESELAMATAN DAN KESIHATAN DI SEKTOR PERTANIAN DAN FAKTOR-FAKTOR BERKAITAN DI KALANGAN PETANI BERUSIA DI PERAK DAN JOHOR, MALAYSIA

Oleh

NABILAH LATIF

Februari 2014

Pengerusi: Anita Abd Rahman, M.D, M. Comm. Health (OH)
Fakulti: Institut Gerontology

Masalah keselamatan dan kesihatan di tempat kerja menjadi isu penting terutama di sektor pertanian yang berisiko tinggi dan terdedah kepada hazad yang berbahaya. Kajian lepas telah membuktikan bahawa kefahaman pekerja mengenai persepsi terhadap keselamatan dan kesihatan di tempat kerja membolehkan mereka mengenalpasti proses berlakunya kemalangan dan sekaligus dapat mengurangkan masalah berkaitannya. Kajian keratan rentas ini direka bentuk untuk mengenalpasti masalah keselamatan dan kesihatan di tempat kerja dan juga menentukan hubungan di antara persepsi petani berusia terhadap masalah keselamatan dan kesihatan di tempat kerja dan faktor-faktor berisiko di kalangan mereka.

Kawasan Perak dan Johor dipilih sebagai negeri yang mempunyai bilangan Pertubuhan Peladang Kawasan yang tertinggi, seramai 164 orang petani berusia 45 tahun dan ke atas telah dipilih berdasarkan kepada persempelan perkadaran, memberi kadar respon sebanyak 97.6%. Set borang kaji selidik yang mengandungi maklumat demografik responden, soalan untuk mengenalpasti masalah kesihatan dan keselamatan dan soalan berdasarkan 50-item dalam *Work Safety Scale (WSS)* yang mempunyai nilai Cronbach alpha diantara 0.887 hingga 0.993 untuk mengukur persepsi terhadap keselamatan dan kesihatan di tempat kerja telah digunakan. Data telah dianalisis menggunakan SPSS versi 19. Responden dibahagikan kepada dua kumpulan iaitu persepsi rendah dan persepsi tinggi berdasarkan jumlah skor dalam 10 item dalam setiap skala WSS.

Didapati, majoriti responden adalah lelaki (78.0%), berkahwin (87.2%), memiliki tahap pendidikan primari (49.4%), pemilik tanah (62.2%), telah bekerja lebih daripada 30 tahun dalam sektor pertanian (66.5%) dan memperolehi pendapatan kurang daripada RM3,000 (84.1%). Masalah penglihatan dan muskuloskeletal adalah penyumbang utama terhadap masalah kesihatan dengan nilai peratus masing-masing

63% dan 60% manakala masalah jatuh menjadi penyumbang tertinggi (39.6%) kepada masalah keselamatan. Lima faktor yang menunjukkan hubungan yang signifikan dengan masalah keselamatan ditemui; umur (χ^2=18.871,p<0.01), tahap pendidikan (χ^2=11.699,p=0.003), jumlah tahun bekerja (χ^2=20.131,p<0.01), pendapatan bulanan (χ^2=5.748, p=0.017), dan persepsi terhadap keselamatan kerja (χ^2=6.898,p=0.009) manakala bagi masalah kesihatan pula, empat faktor yang menunjukkan hubungan yang signifikan adalah umur (χ^2=7.771,p=0.021), kategori pekerjaan (χ^2=5.875,p=0.015), persepsi terhadap keselamatan kerja (χ^2=5.332,p=0.021) dan persepsi terhadap keselamatan rakan sekerja (χ^2=5.884,p=0.031). Seterusnya, ujian regresi logistik terhadap pembolehubah yang signifikan menunjukkan kesemua faktor penyumbang kepada masalah keselamatan adalah signifikan di mana umur (p<0.01) dan jumlah tahun bekerja (p=0.014) adalah faktor risiko kepada masalah keselamatan (umur; OR=8.497, 95% CI: 3.532–20.446, jumlah tahun bekerja; OR=4.016, 95% CI: 1.318–12.235). Seterusnya, bagi masalah kesihatan, umur menunjukkan faktor yang tidak signifikan (OR=3.151, 95% CI: 0.814–12.198) manakala kategori kerja (OR=0.346, 95% CI= 0.118-0.932), persepsi terhadap keselamatan kerja (OR=0.200, 95% CI= 0.040-0.990) dan persepsi terhadap keselamatan rakan sekerja (OR=0.409, 95% CI= 0.192-0.868) didapati merupakan faktor pelindung kepada masalah kesihatan.

Seiring dengan kajian lepas, keputusan yang diperolehi dalam kajian ini menunjukkan bahawa umur merupakan faktor risiko yang penting terutama bagi masalah keselamatan di kalangan petani berusia. Kesimpulannya, masalah kesihatan dan keselamatan di kalangan petani berusia mempunyai campuran hubung kait di antara umur, tempoh pekerjaan, pendapatan, persepsi terhadap keselamatan kerja dan keselamatan rakan sekerja. Kajian ini juga dapat memberi beberapa pandangan terhadap tahap kesihatan dan keselamatan di kalangan responden kajian ini. Dengan mengenalpasti masalah dan persepsi tersebut, kajian ini diharap dapat membantu kajian akan datang untuk memberi cadangan yang sesuai untuk memperbaiki masalah keselamatan dan kesihatan di tempat kerja.

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I certify that a Thesis Examination Committee has met on 12th February 2014 to conduct the final examination of Nabilah Latif on her thesis entitle "Perception towards safety and health in the agriculture sector and associated factors among older farmers in Perak and Johor, Malaysia" in accordance with the Universities and University Colleges Act 1971 and the Constitution or the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Science.

Members of the Thesis Examination Committee were as follows:

Chan Yoke Mun, PhD
Lecturer
Institute of Gerontology
Universiti Putra Malaysia
(Chairman)

Rahimah Ibrahim, PhD
Lecturer
Institute of Gerontology
Universiti Putra Malaysia
(Internal Examiner)

Ahmad Azuhairi Ariffin, PhD
Medical Lecturer
Faculty of Medicine and Health Sciences
Universiti Putra Malaysia
(Internal Examiner)

Mohd Yunus Abdullah, PhD
Medical Professor
Faculty of Medicine and Health Sciences
Universiti Sains Islam Malaysia
(External Examiner)

NORITAH OMAR, PhD
Associate Professor and Deputy Dean
School of Graduate Studies
Universiti Putra Malaysia

Date: 21 April 2014

This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Master of Science. The members of the Supervisory Committee were as follows:

Anita Abd Rahman, PhD
M.D, M. Comm. Health (OH)
Faculty of Medicine and Health Sciences
Universiti Putra Malaysia
(Chairman)

Rosnah Yusoff, PhD
Professor,
Faculty of Engineering
Universiti Putra Malaysia
(Member)

_____
BUJANG BIN KIM HUAT, PhD
Professor and Dean
School of Graduate Studies
Universiti Putra Malaysia

Date:

DECLARATION

Declaration by graduate student

I hereby confirm that:

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This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as stated in the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) are adhered to.

Signature: _____	Signature: _____
Name of Chairman of Supervisory Committee: _____	Name of Member of Supervisory Committee:_____

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%	Percentage
χ^2	Chi Square
CI	Confident interval
df	Degree of freedom
F	Fisher Distribution
H_O	Null Hypothesis
N	Sample size
OR	Odd ratio
p- value	Probability value
DOSH	Department of Safety and Health
LPP	Lembaga Pertubuhan Peladang
FGD	Focus Group Discussion
GDP	Gross Domestic Production
NPD	Non-Permanent-Disability
ILO	International Labor Organization
PPE	Personal Protection Equipment
PPK	Pertubuhan Peladang Kawasan
NASS	National Agricultural Statistics Service
NIOSH	National Institute of Occupational Safety and Health
PD	Permanent Disability
WHO	World Health Organization
WSS	Work Safety Scale

CHAPTER 1

INTRODUCTION

1.1 Background of the study

Safety and health problems at the workplace have been identified as of the major concerns in an organization. Accidents happen at the workplace cause a great loss of life and similarly involve a large amount of money to the individuals, the organization and the nation in general (Hamid, Majid, & Singh, 2008). The safety and health issues implicate a firm cooperation between both the employers and employees in the organizations. Occupation with high risk category like in the agricultural sector involves considerable higher cases of accidents and injuries among the farmers. Many studies has been published to support that agricultural sector is one of the most dangerous workplace that continually been highlighted as higher number of disabilities among the workers (Amshoff & Reed, 2005; Voaklander et al., 2006; Voaklander, Dosman, Hagel, Warsh, & Pickett, 2010; Xiang, Stallones, & Chiu, 1999).

1.2 Agricultural sectors in Malaysia

Agricultural sectors in Malaysia contribute 12% to national Gross Domestic Products (GDP) and give employment to 6% of the population. The three main crops have been dominated agricultural exports ever since were rubber, palm oil and cocoa. Nearly 24% of Malaysia's land area is composed of land dedicated to agriculture activities which utilize around 43,000 different agricultural machines and equipments. Malaysia contains 7,605,000 hectares of arable and permanent cropland. The Malaysian tropical climate is very favorable for the production of various exotic fruits and vegetables since Peninsular Malaysia seldom experiences hurricanes or droughts.

Therefore the Malaysian government gives an additional attention on the land development of agricultural sectors through various transformation programs. The Ministry of Agriculture and Agro-Based Industry is the ministry responsible for carrying out the government’s objectives toward implementing agricultural activities as an important income generator and contribute significantly in the national gross domestic product.

In order to achieve the government’s transformation objectives, there is necessary to give special attention to the people who are directly involved in agricultural production. Thus, several organizations were established such as The Farmer’s Organization Authority of Malaysia or namely Lembaga Pertubuhan Peladang (LPP) that is responsible to register, control and supervise the activities of farmers. Furthermore, the authority is also directly responsible for the overall economic and social wellbeing of farmers in the organization.

1.3 Agricultural safety and health

In Malaysia, The Department of Safety and Health (DOSH) constructed a statistical data in 2011 and revealed that agricultural sector implicate a high risk activity. Figure 1 shows occupational accident by sectors for the category of death, Permanent Disability (PD) and Non-Permanent-Disability (NPD) for the report in 2011. The number of accidents in NPD, PD and death category was higher for agriculture and subsectors (forestry, logging and fishing) after manufacturing sectors.

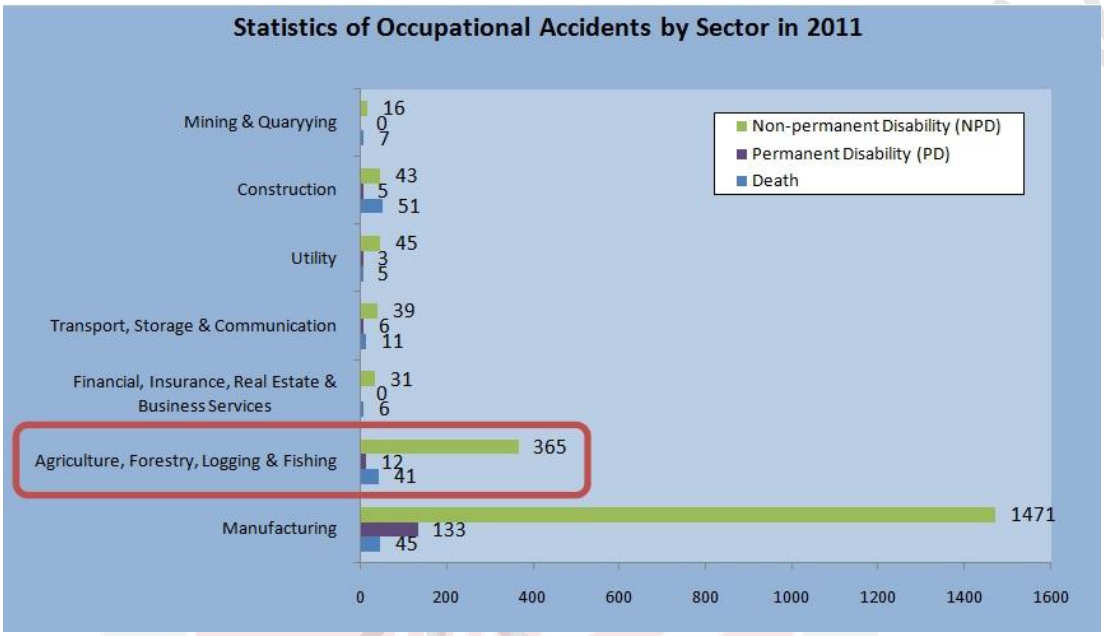

Figure 1: **Occupational accidents by sector in 2011 (Source: Department of Safety and Health Malaysia, 2011)**

Agricultural sector is categorized as informal sectors and has no limit of retirement age. It was categorized as lower educational attainment which remains in the traditional agricultural lifestyle and informal sectors, thus give rise to various problems of workplace health and safety. As agriculture ranks among the most hazardous workplace, the factors contributing to safety and health problems always related to the farmers background characteristics such as age, level of education, job tenure and others (Ibrahim, Co-chair, Co-chair, Burton, & Fortune, 1999). The farmers are at risk for fatal and non-fatal injuries, work related lung diseases, noise-induced hearing loss, skin diseases, and certain cancers associated with chemical use and prolonged sun exposure. Farming also is one of the few sectors in which the families (who often share the work and live on the agricultural area) are also at risk for injuries, illness and death.

1.4 Older farmers in Malaysia

In about 30 years from now, Malaysia is planning to achieve about 38.6 million populations and simultaneously increasing the number of older people. According to the Department of Statistics of Malaysia (DOSM), currently Malaysia population is 28.34 million (2010 survey), where the age group of 15-64 years makes up 68.1%, while above age of 64 years about 4.7%. In overall, about 16% of Malaysian

population is employed through some sort of agricultural activities, either in the plantations like rubber, palm oil, cocoa, paddy, or crops grown for domestic purposes like durian, bananas, coconuts and pineapples. Agricultural in Malaysia makes up about 12% of the nation's Gross Domestic Products (GDP)

Another report from the International Labor Organization (ILO) in 2007 shows that agricultural sector has substantially higher number of older workers as employees compared to the other sectors. Based on the report released by the Department of Statistics of Malaysia in 2009 revealed that the agricultural sector recorded a large population of the farmers (530,400 workers) with the age 45 years old and above compared to fisheries (40,700 workers) and government sectors (248,400 workers) as shown in Figure 2 below.

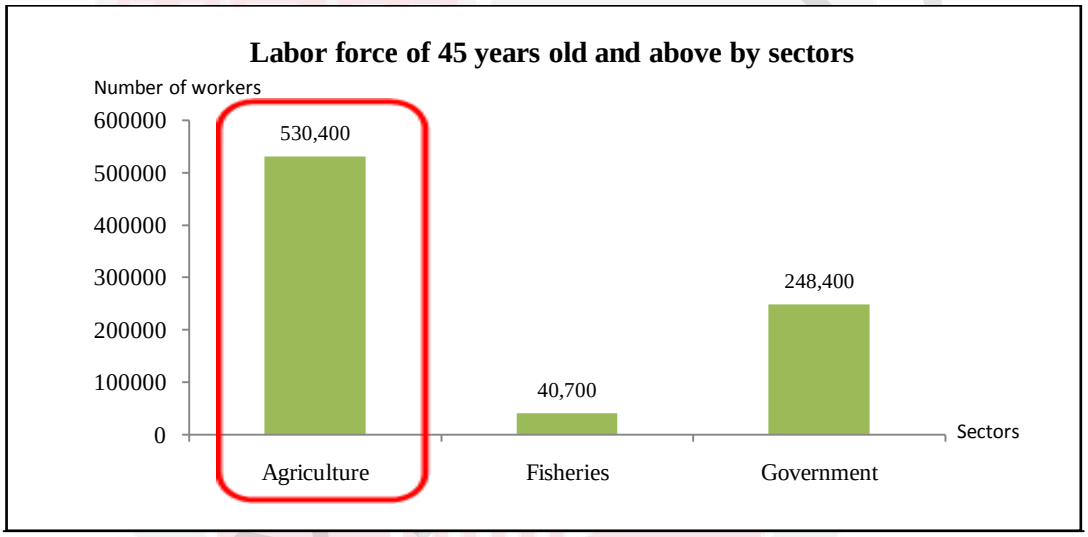

Figure 2: **Labor force of farmers with the age 45 years old and above by sectors in Malaysia (Sources: Labor Force Survey Report, Department of Statistics, Malaysia, 2009).**

The increase of older workforce will consequently lead to various problems related to their workplace safety and health. Due to this scenario many researches has then carried out researches to address a proper presentation concerning workplace safety and health among them (Kowalski-Trakofler, Steiner, & Schwerha, 2005; Mafauzy, 2000). In another aspect a study by Naumanen (2006), reported that the work ability declines after the age of 45 years due to several factors like continuous heavy physical work, cases of extreme stress and most commonly unhealthy life style. The contributing factors affect the work performance of older farmers.

While the working age populations who are younger generations continue migrating to town areas for employment, the older people remain in the rural areas surviving predominantly by farming. Very few younger people getting involve in agricultural activities. However, the current era of rapid industrialization and modernization has direct implication on employing human labor engage in the farming. When farmers passed away, there is little interest in the next generation, especially the retired

children from government or private sectors to continue working in the farm. This scenario has to be given attention to ensure continuity in the employment in the agricultural sector, especially to the land owner.

1.4.1 Agricultural hazard

A "hazard" is defined as anything with the potential to do harm, whereas a "risk" is the likelihood of potential harm from that hazard being realized(Hurst & Kirby, 2004). Below are the lists of agricultural hazards reported by International Labour Organization: A series of Trade Union Education Manual for Agricultural Workers (2004).

1.4.1.1 Physical Hazards

Agricultural workers face a wide range of physical hazards:

- Noisy machinery and noisy working environments such as intensive livestock houses.
- Excessive vibration from tractors, chainsaws and so on.
- Deaths and injuries from falls.
- Asphyxiation in grain, silos wells and so on.
- Solar radiation resulting in skin cancers.
- Deaths and injuries from working with livestock.

1.4.1.2 Ergonomic Hazards

These include hazards associated with the failure to make the job fit the worker and can cause permanent injuries and disablement. For example:

- Badly designed machinery
- Prolonged static working positions
- Repetitive work
- Unsuitable tools used by workers
- Poor seating

1.4.1.3 Psycho-social Hazards

These include problems which cause ill health such as low pay, sexual and related harassment, job insecurity, poor promotion mechanisms and delay in payment of salaries.

1.4.1.4 Chemical Hazards

Chemicals such as pesticides and solvents which result in health hazards ranging from poisoning to long term effects on female and male reproduction, cancers and so on. For example:

- Directly exposed to pesticides during sprayed
- Uncontrolled used of pesticides or herbicides

- Not using proper Personal Protection Equipment (PPE) during handling pesticide.
- Applying pesticide or herbicide during windy season.

1.4.1.5 Biological hazards

Agricultural workers are at risk from a wide range of work related diseases and disorders. These range from diseases caught from birds and animals to asthma and other lung diseases from biologically contaminated dusts.

- Possible direct contact with live animal such as rats, snake, scorpion and others.
- Some small insect are coming to the farm area seasonally and give allergies to farmers.
- Some biological agents can be defined as any micro-organism, cell culture, or human endoparasite, which may cause any infection, allergy, toxicity and create a hazard to human health.

1.5 Perception on workplace safety

The farm related safety and health problems such as, accidents, physical injuries, vision, hearing, skin, respiratory and stress are the most reported complaints by previous researches (Amshoff & Reed, 2005; Hernandez-Peck, 2004; Donald C Voaklander et al., 2010; Xiang et al., 1999). Cases of accidents and injuries in agricultural sectors cause management problems to both workers and the employers in general and the country as a whole. Researchers have then examined the role of perception of workers at workplace safety and health to understand the accidents process (Abdullah, Spickett, Rumchev, Dhaliwal, & Goh, 2009; S. A. Gyekye, 2005; Quine & Morrell, 2008). Worker's perceptions on safety and health are associated with the variables related to workplace accidents rates.

Workers who perceive their jobs as safer tend to be involved in fewer accidents compared to employees who perceive their jobs as relatively more dangerous (Griffin & Neal, 2000; Hayes, Perander, Smecko, & Trask, 1998). To enhance safety and health at the workplace, there must be reciprocal relationship between individuals, jobs and organization (Hayes et al., 1998). Previous researches have recognized that job safety, co-workers safety and management safety practices, supervisor safety and safety programs as the important elements to measure perception on safety at the workplace (Zohar, 1980; Guastello, 1989; Hayes et al., 1998 and Clark et al., 2009).

In this respect, the workers' participation and feedback in all issues are recorded and compiled following the standard questionnaire prepared. Their outcome will identify individual problems and suggest the specific solutions for designing proactive management plan and effective safety and health management policies in this sector. This study revealed comprehensive understanding on the older farmer's perception about their workplace safety and health. Eventually, it is expected that the high risk occupations experienced by the older farmers will be reduced at a considerably lower level through continuous education and awareness program.

1.6 Problem statement

The issues of increasing number of older population (age ≥ 45 years) at workforce are now becoming a major concern in term of workplace safety and health. It is the right time such group of people to be given special attention in an organization as they are considered very valuable asset in view of their skills and expertise in their job function. In order to establish a healthy and quality life society with their participation, the approach towards giving the awareness with respect to safety and health needs further improvement such as giving more training and participation.

The demographic change in older labor workforce will consequently lead to serious safety and health problem especially in high risk occupational like agricultural sector (Frank, McKnight, Kirkhorn, & Gunderson, 2004; Janicak, 2000; Voaklander et al., 2010). The National Institute of Occupational Safety and Health (NIOSH), 2007 in United States have also recognized that farming was one of the risky occupations.

The National Agricultural Statistics Service (NASS) in the United States of America (USA) has reported that the average age of principal farm workers in 2002 was 55.3 years old. Among all occupations in the USA, farming has recorded the highest percentage (68.5%) of workers over the age of 45, which is more than twice the average age of USA employees. In Malaysia, the agricultural sector has been predominantly controlled by older workers where about 70% of them are with the age about 45 years and above. The figure looks consistent from the year 2005 until 2010 based on the report from Ministry of Agriculture and Agro-Based Industry.

Previous studies have also reported the cases of agricultural injuries and disabilities among older farmers and the issue has cause a concern to the occupational safety and health researchers (Amshoff & Reed, 2005; Morton, Fragar, & Pollock, 2006; Voaklander et al., 2006; Voaklander et al., 2010). The fact that majority of them are still in their work even after the age of retirement at 55 years. They are still engage with handling of equipments, doing heavy works which involve physical strength, conduct task in the presence of large unpredictable livestock like cow, buffalo or goat, and also involve directly to hazardous pesticides and fertilizers. They tend to have more cases of health and diseases issues compared to the younger counterparts and this issues has been implicated as contributory factors leading to farm injury (Amshoff & Reed, 2005; Hernandez-Peck, 2004; Morton et al., 2006; Xiang et al., 1999). Another common problems related to injury are deterioration of hearing and eyesight, symptoms of arthritis, fatigue and depression.

Based on various problems related to health and also safety followed by the increasing cases of accidents at the workplace, researchers have determined the need to identify the aspect of the older farmer's perception on safety and health in order to understand the accident process (Abdullah et al., 2009; S. A. Gyekye, 2005; O'Toole, 2002). Previous study has determined that older farmer's perception on safety and health are associated with the variables related to workplace accidents (S. A. Gyekye, 2006).

There are several elements which are measurable to identify the farmer's perception on their safety and health in agricultural sector. They are job safety, co-workers safety, supervisor safety, management safety policy and practices, and satisfaction with the safety program (Guastello, 1989; Hayes et al., 1998). The measurable elements will help to reduce the problems faced by the farmers on the safety and health issues.

As the Malaysia farm population has dwindled, the average age of farmers continues to rise. In fact, about 70% of the farmers in this country are 45 years old or older (Ministry of Agriculture and Agro-Based Industry, 2005).Therefore in this study, the perception on safety and health will be determined in order to identify the safety and health problems among older framers. It is also important to get full participation from both the employer and workers so that individual comments and problems will be identified. The total analysis and conclusion from their feedback can then be derived that lead to suggestion for designing a management plan to set up an effective safety and health policies in this sector. Eventually, the high risk occupations experienced by the older farmers will be reduced at a considered by lower level.

This research was conducted to get the possible answers for the following questions:

1. What are the key problems of workplace safety and health among older farmers in agricultural sectors?

2. To what extent do older farmer's demographic background and perception on workplace safety affect their safety and health problems in agricultural sectors?

3. What are unique predictors of workplace safety and health problems among older farmers?

1.7 Justification of the study

Agricultural safety and health problems have been consistently shown a high proportion of cases involving senior farmers (Janicak, 2000; Jepsen & Mcguire, 2010; Morton et al., 2006).Physical injuries and farm tractor accidents were the most commonly reported causal accident among this population (Field & Whitman, 2009). Another commonly health problem related to older farmer were vision problems and musculoskeletal problems as reported by previous research (Amshoff & Reed, 2005). This study was designed in line with the previous finding to identify the safety and health problems related to older farmers in selected agricultural area in Malaysia.

The perception on safety and health at the workplace was measured in five aspects which can determined the whole safety climates in the organization (Gyekye, 2005, 2006; Hayes et al., 1998; Zohar, 1980). Based on the series of literature reviews, there are some additional importance approaches of safety perception study can be gleaned. The study give way in identifying characteristics that distinguish between

the workers with high or low accident involvement rates, and consequently decrease rate of accident occurrence.

In addition, perception on safety and health give access to the proactive information about the factor leading to safety and health problems and develop proper guidance to reduce rate of accidents and injuries. Safety analyses may provide guidance for the management on how to develop specific safety programs. At the same time, the study has also enabled older farmers participate with direct involvement in the agricultural works with minimum supervision and the long term they become expert in the particular job. Thus, the older farmers provide information about safety and health from the perspective of farmers. Analyses of workers' safety perceptions have been useful in this aspect as they provide a powerful proactive management tool for designing effective safety management policies.

1.8 Significant of the study

Perception on safety and health in agricultural sectors is an important element towards understanding the accident process among the older farmers. Agricultural activities as reported before, contributed the highest number of accidents compared to the other working sectors. Working as farmers, they are exposed to activities leading to physical injuries, fall, musculoskeletal problems, lost of vision, lost of hearing, skin problems, respiratory uncertainties and also emotional stress.

The demographic profile of the Malaysia population will undergo a profound change. According to the Department of Statistic Malaysia, the proportion of the Malaysian population age 60 and older has increased from 5.2% in 1970 to 6.3% in 2000 and has been projected to 9.9% in 2020. Based on United Nation medium projection, the proportion of the Malaysia population age 60 and older will climb up to 14% by 2028 where it this trend also implies that Malaysia will experience a steep increase in the share of elderly persons in the population but at the same time there was a decline in the share of the population of working age. In brief, only 23% of the aged population (60 years and above) was employed and this was a decline from 33% in 1980.

This pronounced trend in aging has also been prominent in the agricultural sector in Malaysia. Among all occupations in the Malaysia in 2004, farming had the highest percentage (75%) of workers over the age of 45 years old. Many farmers continue to perform farm work well beyond the typical retirement age of workers characteristically engaged in heavy physical labor. Farmers sometimes engage in work involving heavy machinery and conduct tasks in the presence of large unpredictable livestock. In addition, older farmers favor to have more health and disease issues than their younger counterparts and these health issues have been implicated as contributory factors leading to farm injury (Voaklander et al., 2010)

The outcome of the study on perception will help to identify the associated factors causing the accidents, injuries fatalities and related risk in the agricultural sectors.

Furthermore it also provides useful information to address workplace safety and health problems in a proper method and implementation towards preparation for guidelines.

This report is expected be useful for the agricultural sectors in developing the safety procedures and manual by taking into account the elements of safety and health perceptions such as job safety, co-workers safety, management safety practices, supervisory safety and safety policies satisfaction (Guastello, 1989; Hayes et al., 1998). The recommendation to adopt proper safety practices will benefit the older farmers as they are a group of people that have specialized skills and valuable experience in the working field.

In the academic point of view, the suggestions derived from the study will be made as a basis for the establishment of a safety and health procedures in the agricultural sector particularly and other industries in general. The procedures in the future will also be a reference for any organizations willing to organize programs related to safety and health among older farmers.

1.9 Research Objectives

1.9.1 General objective

To determine the association between older farmer's perception on workplace safety and health and their safety and health problems at the agricultural sector.

1.9.2 Specific objectives

i. To identify the key problems of safety and health among older farmers in the agricultural sector.

ii. To determine the association between perceptions on workplace safety (job safety, co-workers safety, management safety, supervisory safety and safety programs) and demographic background with safety and health problems among older farmers in the agricultural sectors.

iii. To determine the factors contributing to workplace safety and health problems among older farmers in the agricultural sector.

1.10 Null hypotheses

H_O1: There is no significant relationship between older farmer's perception on workplace safety measured by job safety, co-workers safety, management safety, supervisory safety and safety programs and safety and health problems in the agricultural sectors.

H_O2: There is no significant relationship between older farmer's demographic background factors and safety and health problems in the agricultural sectors.

H_O3: There are no factors contributing to workplace safety and health problems among older farmers in the agricultural sector.

1.11 Definition of terminology

Workplace Safety and Health

Conceptual:

The promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities; and to summarize the adaptation of work to man and of each man to his job.

Operational:

This study applies the same definition to explain about health and safety at workplace where in this study is the agricultural area. For the purpose of this study, the problem related to safety and health at workplace, was measured which were experienced by the older farmers. Workplace health related problem includes musculoskeletal disease, respiratory problem, hearing and vision problem, skin, hair and nails irritation, internal organs failure and mental illness.

Perception on workplace safety

Conceptual:

The ability to see, hear or understand to improve one's power of understanding and self awareness towards something. In the aspect of safety, perception refers to a set of expectation, view and opinion regarding safety in their organization. Safety perceptions have linked on workers safety performance where high workload and work pressure tend to be associated with an increased tendency to engage in unsafe acts which in turn increases their susceptibility to accidents.

Operational:

This study applies the same concept of perception on safety. To enhance safety and health at the workplace, there must be reciprocal relationship between individuals, jobs and organization. Therefore, it becomes an important element to measure perception on safety at the workplace. For the purposes of this study the elements that include safety perception such as job safety, co-workers safety, supervisor safety, management safety and safety programs will be utilized.

Older farmers

Conceptual:

In Finland, individuals over the age of 45 are called ageing workers. Several previous literatures use the same definition to define the minimum number of older workers. Ageing is a natural process for everyone and all living things, however chronologically the process rate is different depends on several factors likegenetics, health conscious, level of illnesses and living environment. In general, the ability to keep up with the daily activities will decline after reaching the age of 45 years due to heavy physical work, high stress and unhealthy lifestyle. Ageing workers are being assessed with physical characteristics like body strength, eye sight, health condition and change of hair color to grey.

Operational:

In this study, the category of workers is those with 45 years and above and engaged with agricultural-based activities. Most of them are working in plantation of oil palm and rubber as a primary, besides the small scale of other crops like banana, pineapple and vegetables. They live in rural areas where farming activities are not far away from their house. The study do not cover paddy field plantation.

1.12 Conceptual Framework

This study was conducted to determine the relationship between older farmer's perception on job safety, co-workers safety, supervisor safety, management safety practices and safety programs on safety and health problem. At the same time, this study is also aimed to determine the relationship between demographic background factors (age, gender, education level, job categories, job tenure and monthly income) on safety and health problems among older farmers.

The relationship between ages has been identified to influence safety problem as mentioned by. The independent variables consist of demographic background factors, the perception on job safety, co-workers safety, supervisor safety, management safety practices and safety programs. The independent variables will be later measured on the safety and health problems experienced by the older farmers (dependent variables). The perceptions on safety and health will use the 50 items of Work Safety Scale (WSS) while the safety and health problems will be measured using developed questions result from the Focus Group Discussion (FGD).

The framework diagram in Figure 3 will provide better understanding on the relationship between the dependent and independent variables measured in the study.

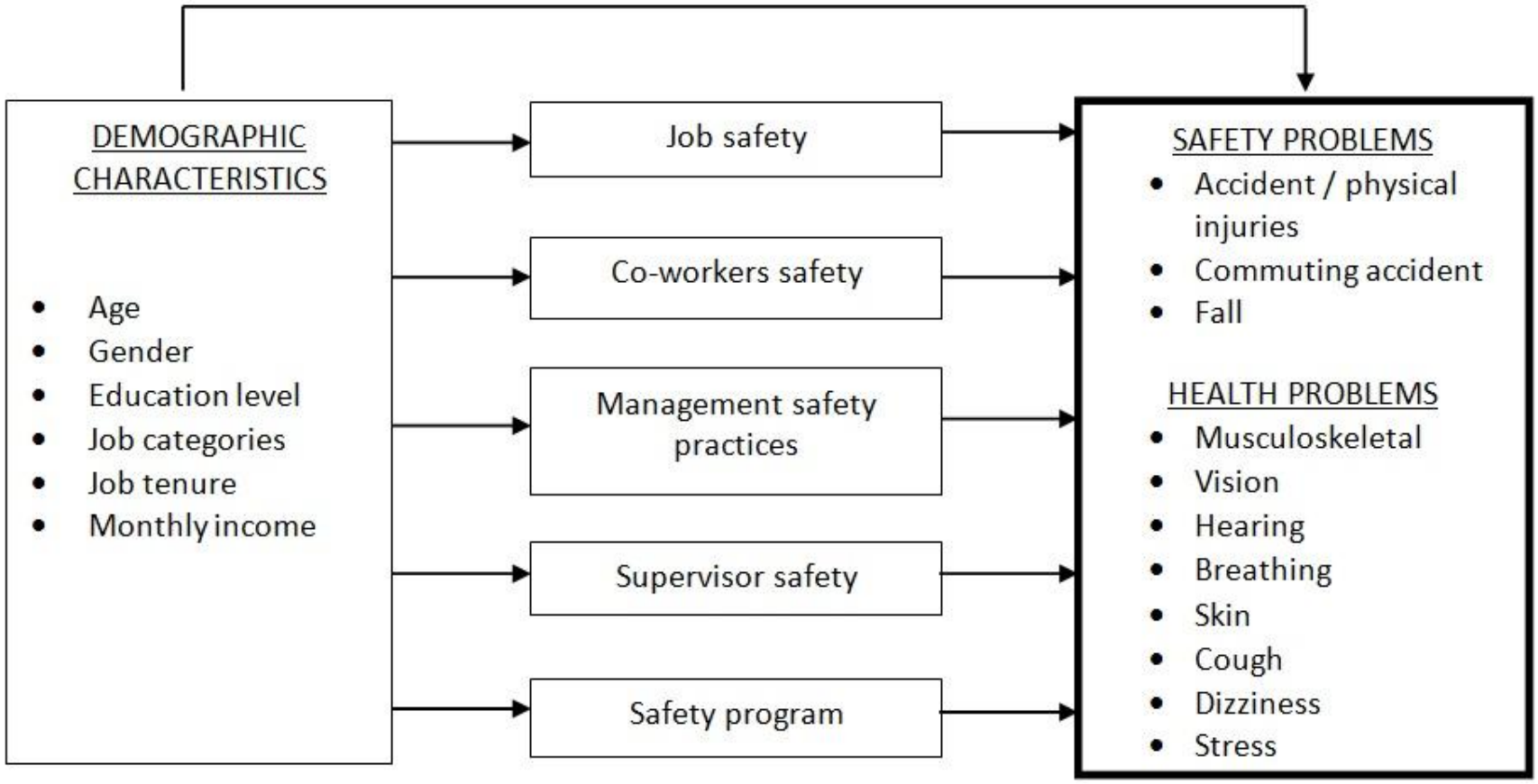

Figure 3: Conceptual framework of perception towards safety and health in the agriculture sector and associated factors among older farmers in Perak and Johor, Malaysia

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