UNIVERSITI PUTRA MALAYSIA

KNOWLEDGE, ATTITUDE AND PRACTICE ON OCCUPATIONAL SAFETY AND HEALTH AT SCHOOL AMONG SCHOOL TEACHERS IN SERDANG AREA

NURSYUHADA BINTI MOHAMAD YUSOFF

KNOWLEDGE, ATTITUDE AND PRACTICE ON OCCUPATIONAL SAFETY AND HEALTH AT SCHOOL AMONG SCHOOL TEACHERS IN SERDANG AREA

BY

NURSYUHADA BINTI MOHAMAD YUSOFF

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

ACKNOWLEDGEMENT

In the name of Allah, Most Gracious and Merciful, all praise to Allah because with His permission it is possible for this thesis to be completed.

I would also like to express the deepest appreciation to my supervisor, Dr. Vivien How for her continuous support and guidance during the process of this study as well as well as the process of completing this thesis.

This study would not have been possible without the participations and cooperation given by the respondents which were the teachers from the primary and secondary school in Serdang area which were Sekolah Jenis Kebangsaan Cina Serdang Baru 2, Sekolah Jenis Kebangsaan Tamil F E S Serdang, Sekolah Kebangsaan Sri Serdang, Sekolah Menengah Kebangsaan Seri Indah, Sekolah Menengah Desa Serdang and also Sekolah Menengah Kebangsaan Seri Serdang.

ABSTRACT

KNOWLEDGE, ATTITUDE AND PRACTICE ON OCCUPATIONAL SAFETY AND HEALTH AT SCHOOL AMONG SCHOOL TEACHERS IN SERDANG AREA

NURSYUHADA BINTI MOHAMAD YUSOFF

Introduction: School can be considered as a relatively moderate risk working environment due to the various hazards assembled in the school, which includes, but not limited to safety hazards, health hazards and environmental hazards. Over the years, there were many accidents occurring at the school setting. There were roughly 33 school related accidents recorded in the past 2 years starting from 2015 until the end of 2016. Moreover, there is also lacking of studies conducted focus mainly on the occupational safety and health issues in school on the perspectives of the educator. **Objectives:** This study aimed to identify the levels of knowledge, attitude and practice (KAP) on Occupational Safety and Health (OSH) at school among primary and secondary school teachers as well as finding associations between knowledge and attitude, between knowledge and practice and between practice and attitude. **Methodology:** A self-administrated survey questionnaires where the questions were adapted from the ASEAN Safe School Initiative syllabus were distributed to 3 primary and 3 secondary schools involving 78 and 58 school teachers respectively. This cross-sectional study were conducted on primary and secondary schools located in Serdang area. **Result and Discussion:** Study showed that majority of the teachers have low levels of knowledge on occupational safety and health matters, positive levels of attitude and good practice levels. Results also found that secondary school teachers had a higher score on knowledge and attitude levels compared to primary school teachers. However, as for practice level, primary school teachers were reported to have higher score level compared to the secondary school teachers'. **Conclusion:** Therefore, more educations on occupational safety and health at school matters should be given to the educators in order to increase their knowledge level before focusing on education for the students.

Keywords: Knowledge, Attitude and Practice (KAP), Occupational Safety and Health (OSH), School, Teachers

ABSTRAK

PENGETAHUAN, AMALAN DAN PRAKTIS KESELAMATAN DAN KESIHATAN PEKERJAAN DI SEKOLAH DALAM KALANGAN GURU-GURU SEKOLAH DI SEKITAR SERDANG.

NURSYUHADA BINTI MOHAMAD YUSOFF

Pengenalan: Sekolah boleh dianggap sebagai persekitaran kerja yang berisiko sederhana disebabkan oleh pelbagai hazad yang terdapat di sekolah, termasuk hazad keselamatan, hazad kesihatan dan hazad alam sekitar. Terdapat banyak kemalangan yang berlaku di sekolah, iaitu kira-kira 33 kemalangan yang direkodkan sepanjang tempoh 2 tahun lepas bermula dari tahun 2015 hingga akhir tahun 2016. Selain itu, kurang kajian yang dijalankan terutamanya mengenai isu keselamatan dan kesihatan pekerjaan di sekolah yang melibatkan perspektif golongan pendidik. **Objektif:** Kajian ini bertujuan bagi mengetahui tahap pengetahuan, amalan dan praktis melibatkan Keselamatan dan Kesihatan Pekerjaan di sekolah dalam kalangan guru sekolah rendah dan sekolah menengah serta mengenal pasti hubungan di antara tahap pengetahuan dan amalan guru, di antara tahap pengetahuan dan antara praktis guru serta tahap amalan dan sikap guru. **Kaedah:** Borang kaji selidik telah dicipta mengikut sukatan " ASEAN Safe School Initiative" diedarkan kepada 3 buah sekolah rendah dan 3 buah sekolah menengah yang masing- masing melibatkan 78 dan 58 orang guru. Kajian rentas keratan ini telah dijalankan di sekolah rendah dan menengah yang terletak di kawasan Serdang. **Keputusan:** Kajian menunjukkan bahawa majoriti guru mempunyai tahap pengetahuan yang rendah berkenaan keselamatan dan kesihatan pekerjaan, tahap amalan positif dan tahap praktis yang baik. Dapatan kajian juga mendapati bahawa guru sekolah menengah mempunyai skor yang lebih tinggi bagi tahap pengetahuan dan amalan berbanding dengan guru sekolah rendah. Walau bagaimanapun, tahap amalan guru sekolah rendah dilaporkan mempunyai skor yang lebih tinggi berbanding guru-guru di sekolah menengah. **Kesimpulan:** Oleh itu, lebih banyak pendidikan mengenai keselamatan dan kesihatan pekerjaan di sekolah perlu diberikan kepada golongan pendidik di sekolah bagi meningkatkan tahap pengetahuan mereka sebelum menyampaian pendidikan kepada pelajar.

Kata kunci: Pengetahuan, Amalan dan Praktis, Keselamatan dan Kesihatan Pekerjaan (KKP), Sekolah, Guru

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVATIONS

KAP	Knowledge, Attitude and Practice
OSH	Occupational Safety and Health
DOSH	Department of Occupational Safety and Health
NIOSH	National Institute of Occupational Safety and Health
MOE	Ministry of Education

CHAPTER 1

INTRODUCTION

1.1 Introduction

Safety is the protection of a person's physical health while health is defined as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (World Health Organization, 1948). Safety and health involves regulations and procedures intended to prevent accidents or injury in workplaces or public environments. In Malaysia, an act is available in order to ensure the safety, health and welfare of persons at work which is known as the Occupational Safety and Health Act (OSHA) 1994 (Act 514).

Hazard is defined as any source or situation that have the potential to harm in term of human injury or ill health, damage to property, damage to the environment or a combination of these (Guidelines for Hazard Identification, Risk Assessment and Risk Control, 2008). Many hazards are available at workplaces as well as the environment which can affect the safety and health of individuals. Example of these hazards are physical hazards, chemical hazards, biological hazards, ergonomic hazards and psychosocial hazards.

Primary and secondary school is an educational institution where people from the age of 7 to 17 attend to learn about a lot of things before furthering their studies in a university. It is found that there are also a lot of hazards available in the school compound. This is an unfavorable condition because students will be the most vulnerable and likely to be effected by these hazards. This is because school students spent the average of 7 to 10 hours a day and 5 days in a week at school. Teachers and other school's staff are also not free from these hazards. Therefore, proper actions should be taken in order to control or eliminate hazards.

Past study found that in Malaysia there were 1,846 total of school injuries and 6 of those accidents were fatal (Junainah, 2002). In fact, there is more under-reporting cases that happened due to the near misses or minor injuries involved. It is harder to track down cases because there are no official communication portal to report accidents or near misses that occurs in school. To date, many programs were implemented by the Malaysian government to reduce the risks of hazards from school settings and minimize the risk of injuries among school users. For instance, The Safe School Program which was initiated in year 2002 with the aim to reduce violence and to contribute to a safe school culture and environment. Some school were also introduced to the Occupational Safety and Health (OSH) at School program that was first done in the year of 2011 by the National Institute for Occupational Safety and Health (NIOSH) to ensure the safety, health and welfare for those at work and protect students against risks to safety and health's hazards.

All of these program highlighted the important of creating a safe and healthy learning environment at school setting. This could be achieved by providing the right knowledge, instilling the safety awareness and also practicing the safety precautionary measures to control or eliminate the hazard at the school environment. In the context of school setting, teachers plays a very big and important role in educating and taking care of the student's welfare. Furthermore, teachers are the *Loco Parentis* which is defined as a person taking in the normal parental responsibilities of a minor (Kadauf and Quadri, 2017). If the teachers are aware and take suitable actions on risks or hazards available many accidents and injuries can be prevented.

Knowledge, Attitude and Practice (KAP) survey is to examine the respondents' knowledge which is their ability to retain and use information, attitude which is their affinity towards certain behavior and finally the practice pointing and focusing on their actions or applications of the knowledge (Kaliyaperumal, 2004). This study will be on the KAP of teachers on safety and health help to examine whether teachers have the knowledge or right understanding to safety and health, possess the proper attitude and actions towards creating a safe and healthy environment in school.

1.2 Problem Statement

There are a lot of accidents occurring at school which is due to the unsafe and unhealthy school environments. There were roughly 33 school related accidents recorded in the past 2 years starting from 2015 until 2016 varying from fatality of falling fans and goal post to

chemical spillage in the laboratory settings (Makhtar et al., 2016). Nevertheless, the exact number of accidents, incidents or near-missed cases reported by the school authorities are in fact, limited. This is because injuries or accidents occurring at school have not been investigated as wide as accidents occurring at home or due to traffic accidents (Scheps, 1987). Moreover, this may also be either that the OSH at school levels is not the priority concerns by the school authority, or the school teachers have a limited knowledge and awareness concerning the necessary needs of OSH at school levels. All of these are closely related to the fact that there is no relevant systems available for reporting of the occurrence of accidents or near misses (Thye, 2016). Besides, there is also the absence of any accidents investigation process in order to figure out the underlying causes of accidents. The failure in figuring the underlying causes may results in the same kind of accidents or incidence to repeat itself again (Canada's National Occupational Health and Safety Resources, 2006).

In order to prevent accidents, a complete knowledge on safety and health is quintessential (Bibbings, 2003) especially when teachers are lacking in the understanding and awareness on safety and health matters (Nurul, 2009). Since hazards may be perceived as something with low risk or unimportant until the condition worsen or an accidents occurs. The incompetency of teachers in handling OSH issues at school will complicates and hardens the task of controlling the hazards around them. In other words knowledge and understanding alone may not be enough to create a safe and healthy environment at school. Teachers needed to be able to identify, acknowledge the risk and take proper and suitable actions in order to eliminate or control the hazards. In fact. Other study suggested that most

teachers understands about safety and health at school however they might not have the right mindset or willingness to eliminate or control those hazards (Husna, 2017).

1.3 Study Justification

Over the years, there were many accidents occurring at the school setting. These accidents may be due to the lack of the right knowledge and understanding or the absence of immediate actions taken. School can be considered as a relatively moderate risk working environment due to the various hazards assembled in the school, which includes, but not limited to safety hazards, health hazards and environmental hazards (Firdaus, 2017). For instances, chemicals used or stored in the laboratory, the structure of the building itself, the school facilities, and etc.

Table 1: Statistics on Types of Accident Occurs in Malaysian School in 2015-2016

Type of Accidents	Number of Cases
Crushed by heavy objects	11
Pierced by sharp objects	3
Stung by venomous animals	1
Chemicals and laboratory equipment were damaged	8
Struck by vehicles	1
Fall from building	7
Perform activity	2
Total	33

Sources: Advances in Safety Management and Human Factors (Pedro Arezes, 2017)

A study done in Malaysia by Kamilah (2017) listed out the types of accidents occurring in school by referring to various newspaper reports from year 2015 to the end of 2016. Findings showed that these type of accidents were from being crashed by heavy objects (11), damaged chemicals and laboratory equipment's (8), falling from buildings (7), pierced by sharp objects (3), while performing activity (2), struck by vehicle (1) to being stung by venomous animals (1).

Since school environment is also considered as a workplace OSH concerns should also apply to the Occupational Safety and Health Act (OSHA) 1994. However, the existing OSHA are presumed to only concern or should be applied by working population and not at school environment (Mahdzir Khalid, 2017). Teachers, school staffs and students do not realize that ensuring the occupational safety and health in the school environment also falls under their responsibility (Mohtar, 2017).

In addition, there is also lacking of studies conducted focus mainly on the OSH issues in school on the perspectives of the educator (Firdaus, 2017). Hazards at school tends to be perceived as something not dangerous until an accidents does occurs. It is also difficult to find relevant information on accidents or near misses happening at school reports or statistics unless it involves death.

Even though, the National Institute of Occupational Safety and Health (NIOSH) had introduced the Occupational Safety and Health (OSH) at school program which was implemented since year 2011, the impact of this program is still yet to outreach to an extended school community. It is found that whenever the topic of safety and health at school is mentioned most would centered on the subjects of hygiene, cleanliness and making school

free from negative external influences such as drug, gangsterism and school violence (Lee, 2013).

This study aims to assess the Knowledge, Attitude and Practice (KAP) level on safety and health among school teachers. This is because teachers are the *Loco Parentis* to the school students (Kadouf, 2017). Teachers are considered as frontlines when the subject of safety are mentioned this is because they interacts with their students daily (Ssekamanya, 2016). In facts, teachers have more authority and the capability to become the change agent at the school to create a health and safety sound learning environment, as well as delivering the right health and safety knowledge and attitude to the students. Most of the past OSH program were either conducted in a one-off basis among students whom action of changes might not be taken into weight as compared to the action from the teachers. Besides that, if the teachers have the right and good KAP level on safety and health at school, they can directly or indirectly communicate or educate their students on this matter.

School in Serdang area was chosen as the sample location because there are many school available and easily accessible in this area. There are government primary and secondary school, Tamil school and also Chinese school. This way the KAP level of the teachers accessed will be through and varying in their level of education and risk exposure. It is also convenient and less time consuming.

1.4 Research Questions

These were the research questions for this study:

i. What is the teachers' knowledge, attitude and practice level on occupational safety and health at school?

ii. What is the association between knowledge and attitude on occupational safety and health at school among school teachers?

iii. What is the association between knowledge and practices on occupational safety and health at school among school teachers?

iv. What is the association between attitude and practices on occupational safety and health at school among school teachers?

1.5 Conceptual Framework

Figure 1.1 shows the conceptual framework of this research. The research were focusing on educators from government school including both the primary and the secondary schools. Educators makes contact with the environment, workplace and their household. This research followed the educators at their workplace settings. There are many hazards available in their work environment. Example of these hazards are physical, chemical, biological, ergonomic and psychosocial hazards. Exposure to these hazards available at the educators' workplace can affect their safety, health and welfare. It was presume that the attitude and practice of the educators may be affected by the level of knowledge possess by them.

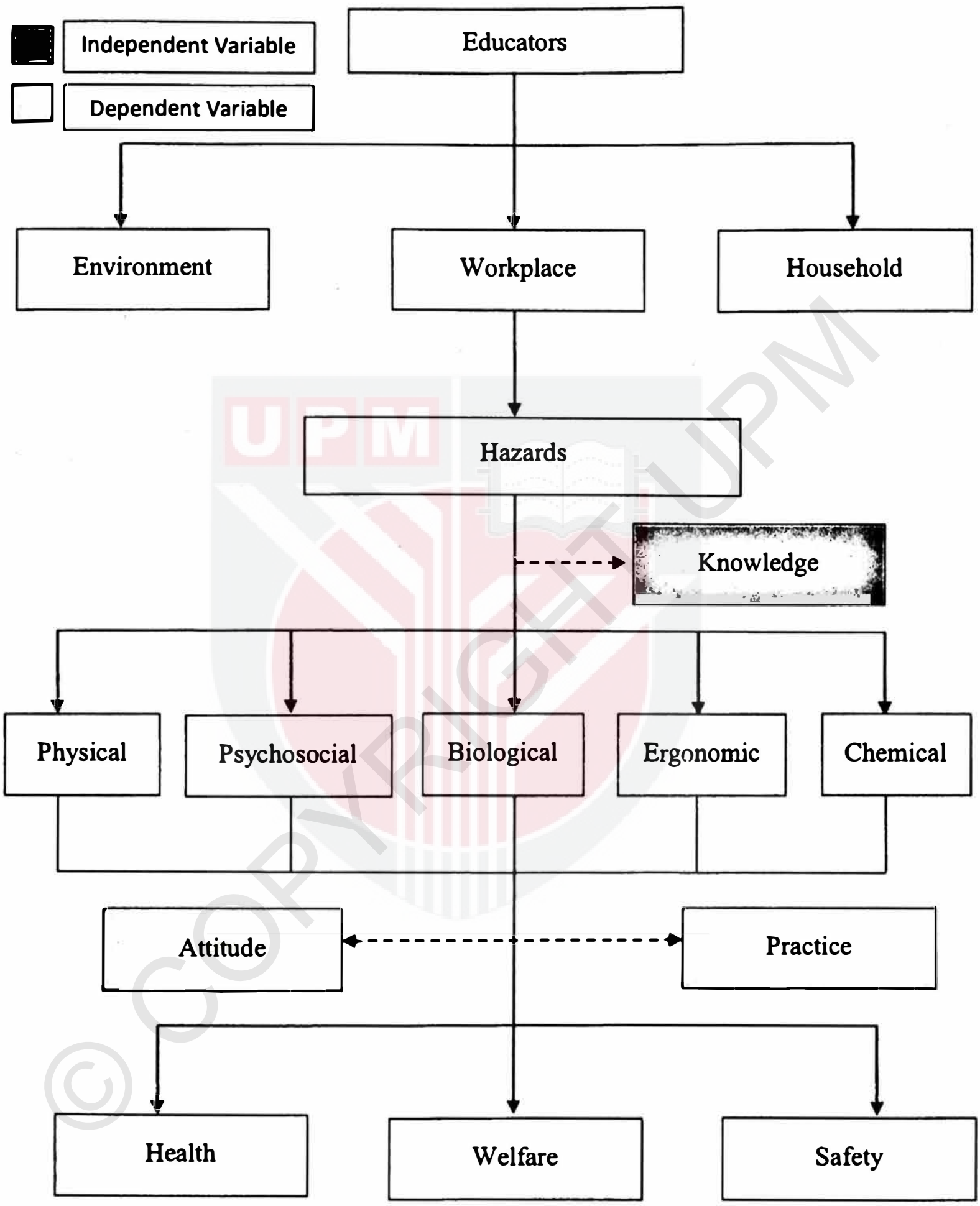

Figure 1.1: Conceptual framework of Knowledge, Attitude and Practice of Safety and Health at school among school teachers in Serdang area.

1.6 Research Objectives

1.6.1 General Objectives

To identify the knowledge, attitude and practice (KAP) on occupational safety and health among school teachers from school located at Serdang area.

1.6.2 Specific Objectives

The specific objectives for this study were:

i. To identify the social-demographic background of school teachers.

ii. To identify the level of knowledge, attitude and practice level related to occupational safety and health at school among teachers.

iii. To compare the knowledge, attitude and practice on occupational safety and health at school level between the primary and secondary school teachers.

iv. To identify the association between knowledge and attitude on occupational safety and health at school among school teachers.

v. To identify the association between knowledge and practice on occupational safety and health at school among school teachers.

vi. To identify the association between attitude and practice on occupational safety and health at school among school teachers.

vii. To identify the association between age and service duration with the knowledge, attitude and practice level.

viii. To identify the association between the experience and occupational safety and health related trainings on the level of knowledge, attitude and practice of school teachers.

1.7 Study Hypothesis

The alternative hypothesis for this study were:

H_1: There is a significant different of knowledge, attitude and practice on OSH at school level between primary and secondary school teachers.

H_2: There is a significant association between knowledge and attitude on occupational safety and health at school among school teachers.

H_3: There is a significant association between knowledge and practice on occupational safety and health at school among school teachers.

H_4: There is a significant association between attitude and practice on occupational safety and health at school among school teachers.

H_5: There is a significant association between age and service duration on the teachers' knowledge, attitude and practice level.

H_6: There are a significant association between the experience and occupational safety and health related trainings on the level of knowledge, attitude and practice of school teachers.

1.8 Definition of Terms

1.8.1 Conceptual Definition

i. Safety and health

Regulations and procedures intended to prevent accident or injury in workplaces or public environments (Oxford Dictionary, 2017)

ii. School

An institution for educating children (Oxford Dictionary, 2017).

iii. Hazards

Source or situation that have the potential to harm in terms of human injury or ill health, damage to property, damage to the environment or a combination of these (Guidelines for Hazard Identification, Risk Assessment and Risk Control, 2008).

iv. Teachers

A person who teaches, especially in school (Oxford Dictionary, 2017).

v. Knowledge

Knowledge is defined as the understanding of certain or related topics (Kaliyaperumal, 2004).

vi. Attitude

Attitude can be defined as perception of someone towards certain topics (Kaliyaperumal, 2004).

vii. Practice

Practice can be defined as the actions or act done based on the knowledge an attitude (Kaliyaperumal, 2004).

1.8.2 Operational Definitions

i. Safety and health

Procedures or requirements that are needed In order to ensure the school environment is in a condition where it is suitable and safe, not prone to accidents with all hazards available in control or eliminated for the wellbeing of the people in it especially the students.

ii. School

Primary and secondary school that is registered with the Ministry of Education in Serdang, Selangor area.

iii. Hazards

Any situation or condition where it is has the ability to cause harm or effect the productivity of people at school including physical, chemical, biological, ergonomic and psychosocial presence in school environment.

iv. Teachers

Individuals that teaches at school who is willing to be a part of this study as a respondent.

v. Knowledge

The knowledge of the teachers in Serdang area school that they have acquired or possess related to the safety and health in a school setting. The knowledge tested will be on general or basic understanding on the different type of hazards and some compulsory requirements in order to avoid unwanted situation.

vi. Attitude

The attitude will be on the teachers' perception or mind set involving safety and health issues or current prevention and control measures in place.

vii. Practice

Practice is defined as any actions intended or executed by the school teachers regarding safety and health in order to control, minimize or eliminate hazards.

CHAPTER 2

LITERATURE REVIEW

2.1 Safety and Health at School

Safety and health is defined as a procedure and regulations with the purpose of preventing accidents or injury in workplaces or public environments (Oxford dictionary, 2017). Safety is known as the protection of a person's physical health while health is defined as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (World Health Organization, 1948). The safety and health of a workplace in Malaysia is a compulsory and crucial factor to be integrated to the place of work. It is also required in the Occupational Safety and Health Act (OSHA) 1994 (ACT 514), Regulations and Orders. It is also stated in the act under regulations 15 that it is the general duties of the employer in order to ensure as far as practicable, the safety, health and welfare at work of their employees (Occupational Safety and Act, 1994).

The ministry is empowered by the Occupational Safety and Health Act 1994 to take action on any violation of the law (Mohtar, 2017). In context of school setting, the teachers and school administration workers will be taking the role of the employer. This is due to the fact that teachers are the *Loco Parentis* to the students attending the school (F.H. Tie, 2004). *Loco Parentis* is a Latin word used in Law for a person taking in the normal parental

responsibilities of a minor (Kadauf and Quadri, 2017). In addition, according to Dr. Muzaffar Syah Mallow from the Faculty of Syariah and Law, Universiti Sains Islam Malaysia (2016), as soon as students are within the school grounds, their safety and security falls under the hands of the school management including the teachers, school management and administration staffs. It is also stated that steps must be taken to improve current standard operating procedure on safety and health at school or legal action should be taken for negligence and carelessness towards safety of the pupils.

2.2 Hazards in School

According to the Queensland Government (2014), school involves a lot of activities with varying range of hazards. These hazards needed to be managed in order to ensure the safety and health or those coming into contact with it. Hazards is defined as any source or situation that have the potential to harm in terms of human injury or ill health, damage to property, damage to the environment or a combination of these (Guidelines for Hazard Identification, Risk Assessment and Risk Control, 2008). Hazards can be divided into 5 different types of hazards which are the physical hazards, chemical hazards, biological hazards, ergonomic hazards and finally the psychosocial hazards.

2.2.1 Physical Hazards

Physical hazards are factors within the environment that can harm the body without necessarily coming into contact (Occupational Safety and Health Administration, 2014). Example of physical hazards available at school are fire hazards, injury due to falling objects, sharp objects, electrical circuits and also unsuitable structure or design of the building. Physical hazards needed to be control or eliminate because they can be cause accidents that may also lead to death. Hoffman et al. (1995) recommends that school should appoint someone to identify accidents risks, expedite any immediate physical changes, supervise the school environments that facilitated intimidation, and also supervise the students' activities.

There was a case where a 14 year old student, Nik Mohd Lutfi Nik Kamarudin which was studying at SMK Tenku Indera Petra 2, died after being hit by a goalpost in the head while playing football with his friends. The goalpost was found to be rusty, very old and damaged. The goalpost were not well maintained and should have been restrained from any usage (Lam Thye, 2016). Besides that, there were also a case in SRK Jasin in Malacca where two students were injured due to wall of the school building collapsing following strong winds. The most recent case is the tahfiz school fire where 23 people died. This shows that every school building should be equip with proper emergency egress and firefighting equipment. It is stated in section 2 of the Fire Service Act 1988 (Act 341) buildings should be installed with fire extinguisher, emergency signs, and emergency egress.

2.2.2 Chemical Hazards

Chemical hazards are any toxic substances that pose a wide range of health hazards and physical hazards (Occupational Safety and Health Administration, 2014). Examples of chemical hazards at school can be found in the laboratory, toilet and also the canteen. Such chemical found at these places are hydrochloric acids, mercury, detergents, Clorox and thinner. There were also incidence where a form 4 student into contact with mercury in the school laboratory from a broken thermometer (New Straights Time, 2016). There was also an incident where 22 students from a secondary school in Taman Tun Dr Ismail suffered skin irritation after sulphuric acid were broken and spilled at their school laboratory (New Straights Times, 2016).

Every school needed to have a proper safety operating procedure in storing and using chemical. An individual need to be appoint to take care of the storing and usage management of the chemicals such as an official lab assistance. Chemicals should be used with ultimate care. Students should also be aware of rules in the laboratory and the danger of the chemical if used carelessly. According to Bibbings (2003), failure in accident preventions are not solely due to incomplete control of the circumstances but also the incomplete knowledge or prediction of what will happen in the future. Furthermore, chemical can also come into contact with the people at school through the water supplies. Based on a study by Lunenburg (2010) it is found that there are lead accumulation in the blood and bones of the school students which eventually dulls their mind and causes severe behavior problems.

2.2.3 Biological Hazards

Biological hazards refers to any biological substances that pose a threat to health such as fungi or mold and bacteria or viruses (Occupational Safety and Health Administration, 2014). In a school setting, example of biological hazards that can be found are fungi or mold growth on the wall of toilet, classroom or library, presence of harmful bacteria or viruses in food and finally being bitten by poisonous snakes or insects. There were case where a standard 1 female students from Sekolah Kebangsaan (SK) Dato' Hashim 1, Pengkalan Chepa, Kelantan died after being bitten by a venomous snake at school (Rinalfi, 2016). The Malaysian Civil Defence Department (JPAM) also confirmed another female student of SK Dato' Hashim 1, Nuriey Nadhirah Roslan who also died after being bitten by a snake in a garden beside her classroom.

Dr. Tengku Rinalfi Putra Tengku Azizan (2016) who is a senior lecturer of the Faculty of Veterinary Medicine of Universiti Putra Malaysia (UPM) urged that the school and the local authorities to conduct a periodical inspections on places that is considered to be the possible habitat for venomous creatures. Besides that, biological hazards can be found where there is excessive humidity in school area such as the toilet that can lead to the growth of mold and fungus that may multiply to a harmful level without the school authorities recognizing it (World Health Organization, 2010).

Besides that, it is found that food poisoning among school students in the year of 2016 increased by 57% in the first four months compared to the previous year. The majority of food poisoning with a percentage of 95.7% were due to food prepared in the school

canteen or kitchen hostel. These cases mainly are caused by contamination of raw materials, cross contamination while handling the food and also food prepared left for more than 4 hours (Hisham, 2016).

2.2.4 Ergonomic Hazards

Ergonomic hazards is a physical factors within the environment that harms the musculoskeletal system which includes activities such as repetitive movement, manual handling, uncomfortable work station and poor body positioning (Occupational Safety and Health Administration, 2014). A multitude of ergonomic hazards were found at school setting. Widespread mismatches between anthropometry and school furniture, heavy schoolbag carriage and unhealthy bag behaviour are significant. Negative effects range from general tiredness, musculoskeletal pains, spinal deviations, shoulder level shifts, injuries and psychological disturbances (Jayaratne, 2012).

2.2.5 Psychosocial Hazards

Psychosocial hazards are hazards that affects the mental well-being or mental health by overwhelming individual's coping mechanisms and ability to function in a healthy and safe manner (Occupational Safety and Health Administration, 2014). Carbino (2010) defined a safe school is where teachers can teach and students can learn in a warm, encouraging, and nurturing environment without the threat and resulting fear of violence occurring at any moment. This is also to say that safe, caring, participatory and responsive school

environment fosters greater attachment to school and provides the optimal foundation for social, emotional and academic learning (Osterman, 2002).

Furthermore, according to Moses Samuel (2017), one of the writer to the Education in Malaysia, Developments and Challenges there is a ratio of 12:1 for the students-to-teachers ratio. There is an average of 32 students in every classroom. This can be a contributing factor to psychological stress due to excessive workload put on the teachers. Besides that, it is also stated that teachers may spend an average of 57 hours in a week on school related matters (Ministry of Education Malaysia, 2013). The students are also exposed to the psychosocial hazards due to the violence condition at school, peer pressure, bullying and also increase workload between academics and curricular activities.

2.3 Current Existing Preventive Actions and Control Measures

There are some available and implemented programs done by the government authorities in order to control and maintain the safety and health at school. For instance, The Safe School Programme. This Programme was introduced by the Ministry of Education in 2002. The objective of this program are to improve safety and health related procedures on emergencies, accidents and disaster, foster an environment at school that is safe, healthy and conducive for learning and also to protects the right of each individual at school. The program was first established resulting from the growing concern about safety and security issues in school involving incident of school violence, vandalism, theft, bullying and discipline problems.

Another program done is the Occupational Safety and Health (OSH) at School program proposed by the National Institute of Occupational Safety and Health in 2011. This program is where a few school was selected and given proper education and knowledge on safety and health matters. This is to prevent any misconception or misunderstanding of the OSH at School program. The Chairman of the National Institute of Occupational Safety and Health, Tan Sri Lee Lam Thye (2013), claimed that many are still in the dark and have limited knowledge and understanding regarding the safety and health matters involving school. Most school understanding are more limited to and inclined towards talk about hygiene, cleanliness and making school safe from discipline, school violence and crime. In reality the OSH at School should have also covered the dimension and views where school is a workplace and should falls under the Occupational Safety and Health Act (OSHA) 1994.

The National Institute of Occupational Safety and Health (2017) also suggested that every school should conduct a health and safety audit in order to identify hazards available and also test the effectiveness of current preventive measure in existence. Safety audits should be conducted on the building structures and basic infrastructure in school such as classrooms, canteen, toilets and laboratories (New Straight Times, 2016). The Education Minister Dato Seri Mahdzir Khalid (2016) stated that schools that are 25 years or older must do rewiring to prevent unwanted accidents. Finally, Chairman Lee Lam Thye (2017) state that schools with more that have more than 1,000 total of teachers and students should an expert on site for advice on safety for inside and outside school activities.

CHAPTER 3

METHODOLOGY

3.1 Study Design

This study is a cross-sectional study by using a self-administrated questionnaire where its questions were adapted from the ASEAN Safe School Initiative Program syllabus which were distributed to the respondents in order to test their Knowledge, Attitude and Practice (KAP) level on safety and health of the school teachers in Serdang.

3.2 Study Location

The study was carried out in primary and secondary schools located at Serdang, Selangor area.

3.3 Study Sampling

The respondent involved in this study includes the teachers from primary and secondary school registered with the Ministry of Education (MOE) located in Serdang, Selangor area.

3.4 Study Population

The respondents were selected randomly from school in Serdang, Selangor area who fulfilled the inclusive criteria which were:

i. Teacher who teaches in the selected school

3.5 Sampling Unit

The teachers that taught in school in Serdang, Selangor.

3.6 Sampling Method

The sampling of the sample were done by using a stratified random sampling. Schools in Serdang area were selected through the stratified random sampling. The 6 selected schools were stratified into 2 strata group which were the primary school and the secondary school. There were a total of 3 primary schools and 3 secondary schools. The respondents which are the teachers were randomly selected through the fishbowl technique based on the list of teachers given by the headmasters.

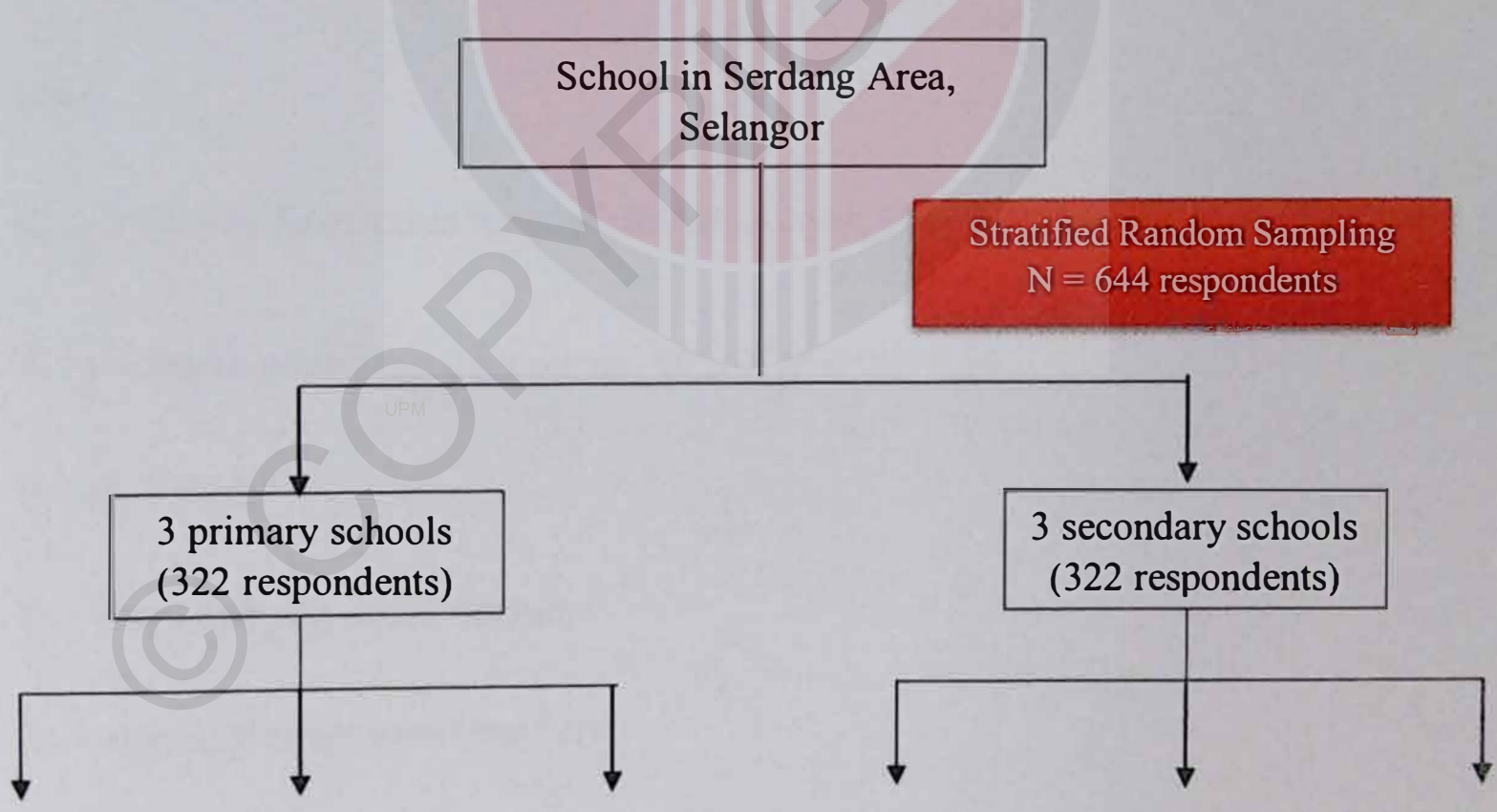

Figure 3.1: Research Flow of Study

3.7 Sample Size Calculation

For sample size, two proportion sampling will be used. The formula of sample size calculation used by referring Lemeshow et al. (1990) and Lipsey (1990).

$n_1 =$

$$\frac{\{(Z_{1-\frac{\alpha}{2}}\sqrt{2\,P(1-P)} + Z_{1-\beta}\sqrt{P_1(1-P_1)+P_2(1-P_2)}\,\}^2}{(P_1-P_{2)}{}^2}$$

$n_2 = n_1 \text{ X } 2$

$n_3 = n_2 \div 0.8$

$n_4 = n_3 \div 0.9$

Here,

$Z_{1-\frac{\alpha}{2}}$ = Standardized value for confidential interval, 95% CI = 1.96

$Z_{1-\beta}$ = Standardized value for power, 80% of power = 0.84

$P = (P_1 + P_2/2)$

P_1 = estimated proportion (larger)

P_2 = estimated proportion (smaller)

N_1 = the sample size estimation

N_2 =the adjustment group

N_3 = the adjustment of estimated response rate

N_4 = the adjustment of eligibility

By using Knowledge and Practice proportion (referred to Ye Min Htun, 2013)

P_1 = the proportion of good practice among good knowledge which is 0.574

P_2 = the proportion of good practice among poor knowledge which is 0.444

N_1 =

$$\frac{\{\,(1.96\sqrt{2\,(\frac{(0.574+0.444)}{2})(1-(\frac{(0.574+0.444)}{2}))}\,+\,0.84\sqrt{0.574(1-0.574)+0.444(1-0.444)}\,\}^2}{(0.574\,-0.444)^{\,2}}$$

$= 232$

$N_2 = 464$

$N_3 = 580$

$N_4 = 644$

Thus, the sample size was calculated for the objectives in this study according to proportion from the previous study Ye Min Htun, 2013. This previous study was chosen as a proxy since there are no similar study done before. Thus a minimum of 644 respondents should be recruited in this study to fulfil the number of sample size calculation.

3.8 Study Instrument

A questionnaire (Refer Appendix II: Questionnaire) was designed in order to fit the safety and health at school issues and adapter from the ASEAN Safe School Initiative syllabus. The questionnaire consist of four sections. The first section were on the socio-demographic characteristics of the respondents. The second section were questions on the respondents' knowledge on safety and health at school. The third section were on the respondents' attitude towards safety and health issues. The fourth section were questions based on the respondents' practice.

The division of the questionnaire were as below:

3.8.1 Section A (Socio-demographic Characteristics)

In this section, there were a total of 12 questions asked such as gender, age, ethnicity, subject being taught, experience years of working as a teacher, past exposure to safety and health training and also the name of school.

3.8.2 Section B (Knowledge on Occupational Safety and Health at School)

There were 15 questions asked in order to obtain or assess the level of respondents' knowledge on safety and health at school. There were 3 answer options provided which were yes, no and do not know. 1 score were given for each question answered correctly and 0 score given for every wrong answers. The cut-off point categorizes the knowledge on safety

and health at school based on the study by Htun (2013). The scores will be ranged from 0-15 scores and categorized into:

High level (80% - 100%) : 12-15 scores

Medium level (60% - 79%) : 9-11 scores

Low level (less than 59%) : 0-8 scores

3.8.3 Section C (Attitude on Occupational Safety and Health at School)

There were 15 statements inquired which were categorized into positive and negative statements. This sections integrated the use of Likert's scale to assess the attitude of the respondents on safety and health at school. Below were how the rating scale were obtained and measured:

Positive Statement	
Choice	Scores
Strongly agree	5
Agree	4
Neither agree nor disagree	3
Disagree	2
Strongly disagree	1

Negative Statement	
Choice	Scores
Strongly agree	1
Agree	2
Neither agree nor disagree	3
Disagree	4
Strongly disagree	5

15-75 points of scores indicated the rating scale. Individual answers were summed up into total scores and the mean were calculated. The cut-off point to categorize the attitude towards safety and health at school based on Htun (2013) are as follows:

Positive attitude (71% - 100%) :54-75 scores

Normal attitude (60% - 70%) :45-53 scores

Negative attitude (less than 59%) :15-44 scores

3.8.4 Section D (Practice on Safety and Health at School)

There were 15 statements that were inquired which were categorized into positive and negative statements. This sections integrated the use of Likert's scale to assess the practice of the respondents on occupational safety and health at school. Below were how the rating scale were obtained and measured:

Positive Statement	
Choice	Scores
Always	5
Often	4
Sometimes	3
Rarely	2
Never	1

Negative Statement	
Choice	Scores
Never	1
Rarely	2
Sometimes	3
Often	4
Always	5

15-75 points of scores indicated the rating scale. Individual answers were summed up into total scores and the mean were calculated. The cut-off point to categorize the practice towards occupational safety and health at school based on Htun (2013) were as follows:

Good practice (51% - 100%) :45-75 scores

Poor practice (less than 51%) :15-44 scores

3.9 Quality Control

This study was approved by the Office of the Deputy Vice Chancellor (Research and Innovation) with reference number of UPM/TNCPI/1.4.18.2 (JKEUPM).

3.9.1 Validity

Validity test were used to measure desired performance and suitable inferences to be drawn from certain results (New Horizons for Learning, 2007). Questionnaires were used as the study instruments which were a self-administrated or created questionnaire. The content validity were done by a group of subject matter experts to evaluate the strength of the content for this study.

3.9.2 Reliability

The test-retest reliability were conducted in order to examine the degree of consistency of the result over time. The internal consistency were tested using reliability test of Cronbach's

alpha and the result of $\alpha = 0.885$ were obtained which shows that the questionnaire have a good reliability. This test are one of the most commonly used test to measure the internal consistency ("reliability"). The following standards were used:

- $\alpha \geq 0.9$: excellent reliability
- $0.9 > \alpha \geq 0.8$:good reliability
- $0.8 > \alpha \geq 0.7$: acceptable reliability
- $0.7 > \alpha \geq 0.6$: questionable reliability
- $0.6 > \alpha \geq 0.5$: poor reliability
- $0.5 > \alpha$: unacceptable reliability

3.10 Statistical Analysis

Statistical Analysis Package for Social Science (SPSS) version 22.0 for Windows was used to analyze the raw data and run the statistical test.

Table 3.2: Data analysis for this study

OBEJECTIVES	HYPOTHESIS	DESCRIPTIVE ANALYSIS
To determine the social-demographic background of school teachers.	-	Descriptive analysis

To assess the level of knowledge, attitude and practice level related to safety and health at school among teachers.	-	Descriptive analysis
To determine the significant different of KAP on OSH at school level between primary and secondary school teachers.	There is a significant different of KAP on OSH at school level between primary and secondary school teachers.	Correlation coefficient test
To determine the association between knowledge and attitude on OSH at school among school teachers.	There is a significant association between knowledge and attitude on OSH at school among school teachers.	Correlation coefficient test
To determine the association between knowledge and practice on OSH at school among school teachers.	There is a significant association between knowledge and practice on OSH at school among school teachers.	Correlation coefficient test
To determine the association between attitude	There is a significant association between attitude	Correlation coefficient test

and practice on OSH among school teachers.	and practice on OSH at school among school teachers.	
To compare the knowledge, attitude and practice level on OSH at school between primary and secondary school teachers.	The knowledge, attitude and practice level on OSH at school of secondary school is higher than primary school.	Mann-Whiteny U-test
To identify the association between age and service duration with the KAP level.	There are significant association between age and service duration on KAP level.	Correlation Coefficient test
To identify the association between the experience and OSH related trainings on the level of KAP school teachers.	There are a significant association between the experience and OSH related training on KAP level.	Chi-square test

CHAPTER 4

RESULTS

4.1 Socio-demographic of Primary and Secondary School Teachers

Data were collected from 6 different schools in Serdang area of which consisted of 3 primary and 3 secondary school. There were a total of 78 respondents from the primary school and a total of 58 respondents for the secondary school. The total respondents that completed the questionnaires were 136 school teachers.

Table 4.1 reveals the socio-demographic characteristics of the respondents where the majority of the primary (78.2%) and secondary (87.9%) schools respondents were females. As for primary school's respondents, 43.6% were Chinese, 29.5% were Indian and the rest were Malays (26.9%). However, for the secondary school teachers the respondents were mostly Malays (79.3%) followed by 13.8% of Chinese and 6.9% of Indian school teachers.

The age range of the teachers were 24-60 years old with the majority of ≤ 39 years old for both the primary (56.2%) and secondary school teachers (43.1%) followed by 40-49 years old at 24.4% for primary and 32.8% for secondary school teachers and finally the age range of 50 ≥ years old at 19.2% for primary and 24.1% for secondary school teachers. Next, the range of service duration were from 1-37 years where the majority for both primary (59.0%) and secondary (46.6%) school were at ≤ 39 years of services. The second highest range of service duration both for primary and secondary school teachers were ≥ 25 years at

16.7% and 22.4% respectively. As for the primary school, there were 14.1% of teachers with the service duration of 20-24 years and 10.3% with the service duration 15-19 years. As for the secondary school, there were 22.4% of teachers with service duration of > 25 years and 6.9% at 20-24 years of service duration.

The teachers were asked whether they have ever attended any trainings on safety and health, first-aid, emergency and response, chemical managements or spillage and if they ever handled any accidents at school. As for primary school teachers result showed that only 23.1% went to safety and health trainings, 41.0% had first-aid training, 26.9% had been to any emergency and response, 7.7% training on chemical management or spillage and finally only 32.1% of the teachers had experience on handling accidents at school. However, the result for secondary school teachers showed that, 43.1% of them had received safety and health training, 51.7% had first-aid training, 55.2% with emergency and response training, 19.0% that attended chemical management or spillage training and only 37.9 of teachers with the experience of handling accidents at school.

Table 4.1: Socio-demographic Characteristics of Teachers

Socio-demographic Characteristics	Primary School (n=78) Frequency (%)	Mean (SD)	Secondary School (n=58) Frequency (%)	Mean (SD)	Min-Max (years)
Gender					
Male	17 (21.8)		7 (12.1)		
Female	61 (78.2)		51 (87.9)		
Ethnicity					
Malay	21 (26.9)		46 (79.3)		

Chinese	34 (43.6)		8 (13.8)		
Indian	23 (29.5)		4 (6.9)		
Age					
≤ 39	44 (56.2)	39.92 (8.59)	25 (43.1)	40.83 (9.50)	24-60
40-49	19 (24.4)		19 (32.8)		
≥ 50	15 (19.2)		14 (24.1)		
Service Duration					
≤ 14	46 (59.0)	14.62 (8.25)	27 (46.6)	15.22 (9.31)	1-37
15-19	8 (10.3)		14 (24.1)		
20-24	11 (14.1)		4 (6.9)		
≥ 25	13 (16.7)		13 (22.4)		
Safety and Health Training					
Yes	18 (23.1)		25 (43.1)		
No	60 (76.9)		33 (56.9)		
First aid Training					
Yes	32 (41.0)		30 (51.7)		
No	46 (59.0)		28 (48.3)		
Emergency Response Training					
Yes	21 (26.9)		32 (55.2)		
No	57 (73.1)		26 (44.8)		
Chemical Management/spillage Training					
Yes	6 (7.7)		11 (19.0)		
No	72 (92.3)		47 (81.0)		
Handling Accidents					
Yes	25 (32.1)		22 (37.9)		
No	53 (67.9)		36 (62.1)		

4.2 Knowledge on OSH at School of School Teachers

Table 4.2 showed the result on knowledge levels of school teachers on OSH matters at school. Study found that 50.0% of the respondents obtained a low level of knowledge, 41.9% had medium knowledge and the rest 8.1% with high level. From those results, 59.0% of the primary school teachers had low level of knowledge, 38.5% with medium knowledge and another 2.6% with high knowledge. As for the secondary school teachers, result stated that there were 37.9% with low level of knowledge, 46.6% at medium knowledge and 15.5% with high knowledge level.

Table 4.2: Levels of Knowledge for the Entire Population

Knowledge Levels	Primary School (n=78)	Secondary School (n=58)	Total (N=136)
Low	46 (59.0)	22 (37.9)	68 (50.0)
Medium	30 (38.5)	27 (46.6)	57 (41.9)
High	2 (2.6)	9 (15.5)	11. (8.1)

Table 4.2.1 shows the percentages of primary school teachers' answers for the questions to identify the knowledge level of school teachers obtained from questionnaire used. Result showed that, 3 questions of which the teachers scored highest were on question number 7 where 85.9% agreed that heat stress can cause death, question number 8 where 91.0% of them claimed that poor food handling can cause foodborne diseases and question number 14 where 85.9% of the teachers are aware that teachers are among the high risk professions to getting mental health problems.

In addition, as for 3 questions on knowledge scored the lowest by primary school teachers were question number 1 where 93.6% of the teachers agreed that children are considered safe and healthy when they are within the school compound, question number 2 where 92.3% claimed that being healthy is when you are free of any diseases or infirmity and finally for question number 9 where 89.7% perceived the school environment to be safe and healthy in its nature.

Table 4.2.1: Knowledge on Occupational Safety and Health for Primary School Teachers

(N=78)

No.	Statements	Yes n (%)	No n (%)	Do Not Know n (%)
1.	School children are considered safe and healthy in the school region.	73 (93.6)	4 (5.1)	1 (1.3)
2.	Being healthy is when you are free from any disease or infirmity.	72 (92.3)	5 (6.4)	1 (1.3)
3.	School is one of the workplace that is covered under the Occupational Safety and Health Act 1994.	66 (84.6)	2 (2.6)	10 (12.8)
4.	Students' concentration in the class can be affected by the classroom lighting system.	63 (80.8)	11 (14.1)	4 (5.1)
5.	Un-ergonomic chairs and tables will affect the students' learning performance in the class.	61 (78.2)	8 (10.3)	9 (11.5)
6.	The electrical wiring shall be reinstalled every 25 years for safety purposes.	56 (71.8)	6 (7.7)	16 (20.5)
7.	Heat stress can cause death.	67 (85.9)	2 (2.6)	9 (11.5)
8.	Poor food handling procedures will cause foodborne diseases.	71 (91.0)	1 (1.3)	6 (7.7)

9.	School is supposed to be a safe and healthy environment in its nature.	70 (89.7)	6 (7.7)	2 (2.6)
10.	Panadol is one of the crucial items to be included in the first aid kit.	36 (46.2)	26 (33.3)	16 (20.5)
11.	There are no particular safety and health hazards in school environment.	32 (41.0)	35 (44.9)	11 (14.1)
12.	Fire safety plan is an optional plan to ensure a safe response and evacuation procedure during emergency situation.	66 (84.6)	8 (10.3)	4 (5.1)
13.	Prolong standing during class will increase the risk of getting musculoskeletal disorders.	58 (74.4)	7 (9.0)	13 (16.7)
14.	Teachers are among the high risk professions of getting mental health problem from work.	67 (85.9)	6 (7.7)	5 (6.4)
15.	Improper personal hygiene will not increase the incidence of waterborne diseases.	26 (33.3)	43 (55.1)	9 (11.5)

Table 4.2.2 shows the percentages of secondary school teachers' answers for the questions to identify the knowledge level of school teachers obtained from questionnaire used. Result claimed that the 3 questions with the highest score to be question number 4 where 89.7% of the teachers are aware that their students' concentration level can be affected by the lighting conditions in the classroom, questions number 7 where 93.1% agreed that heat stress can cause death and a total of 96.6% of the teachers know that poor handling of food can lead to foodborne diseases.

Three of the questions with the lowest score were question number 1 where only 17.2% of the teachers thought that children are not considered safe and healthy whenever they are within the school compound, question number 2 with only 20.7% knew that being free from

any diseases or infirmity does not mean that they are healthy and finally question number 12 where 91.4% of teachers assumed that fire safety is an optional plan to ensure a safe response and evacuation procedure during emergency situations.

Table 4.2.2: Knowledge on Occupational Safety and Health for Secondary School Teachers (N=58)

No.	Statements	Yes n (%)	No n (%)	Do Not Know n (%)
1.	School children are considered safe and healthy in the school region.	76 (79.3)	10 (17.2)	2 (3.4)
2.	Being healthy is when you are free from any disease or infirmity.	46 (79.3)	12 (20.7)	0 (0.0)
3.	School is one of the workplace that is covered under the Occupational Safety and Health Act 1994.	46 (79.3)	3 (5.2)	9 (15.5)
4.	Students' concentration in the class can be affected by the classroom lighting system.	52 (89.7)	6 (10.3)	0 (0.0)
5.	Un-ergonomic chairs and tables will affect the students' learning performance in the class.	51 (87.9)	1 (1.7)	6 (10.3)
6.	The electrical wiring shall be reinstalled every 25 years for safety purposes.	48 (82.8)	5 (8.6)	5 (8.6)
7.	Heat stress can cause death.	54 (93.1)	2 (3.4)	2 (3.4)
8.	Poor food handling procedures will cause foodborne diseases.	56 (96.6)	2 (3.4)	0 (0.0)
9.	School is supposed to be a safe and healthy environment in its nature.	37 (63.8)	19 (32.8)	2 (3.4)
10.	Panadol is one of the crucial items to be included in the first aid kit.	22 (37.9)	33 (56.9)	3 (5.2)

11.	There are no particular safety and health hazards in school environment.	24 (41.4)	33 (56.9)	1 (1.7)
12.	Fire safety plan is an optional plan to ensure a safe response and evacuation procedure during emergency situation.	53 (91.4)	3 (5.2)	2 (3.4)
13.	Prolong standing during class will increase the risk of getting musculoskeletal disorders.	39 (67.2)	5 (98.6)	14 (24.1)
14.	Teachers are among the high risk professions of getting mental health problem from work.	48 (82.8)	7 (12.1)	3 (5.2)
15.	Improper personal hygiene will not increase the incidence of waterborne diseases.	19 (32.8)	34 (58.6)	3 (5.2)

4.3 Attitude on OSH at School of School Teachers.

Result in Table 4.3 reports that a majority of 90.4% of teachers having a positive level of attitude on OSH at school followed by 5.9% having normal attitude and 3.7% of them getting negative attitude on OSH at school. This study showed that for primary school teachers 1.3% got negative level of attitude, 10.3% scored normal and the majority of 88.5% with positive level of attitude on OSH at school. As for the secondary school result found that, 6.9% scored negative attitude level with the rest of 90.4% as positive attitude and none (0.0%) of the teachers reported to have medium level of attitude.

Table 4.3: Levels of Attitude for the Entire Population

Attitude Levels	Primary School (n=78)	Secondary School (n=58)	Total (N=136)
Negative	1 (1.3)	4 (6.9)	5 (3.7)
Normal	8 (10.3)	0 (0.0)	8 (5.9)
Positive	69 (88.5)	54 (93.1)	123 (90.4)
Total	78 (100.0)	58 (100.0)	136 (100.0)

Table 4.3.1 shows the primary school teachers' percentages of answers on attitude of OSH at school matters. Result found that the 3 questions with the highest score were question number 2 where 94.8% of the teachers agreed that the school should ensure that the toilets at school are cleaned daily, question number 11 where 96.1% believed that the classroom lighting system should be checked regularly and question number 12 where a total of 94.9% perceived that it is the school responsibility to ensure that electrical supplies at school are well maintained.

Three questions with the lowest score were question 4 only 3.8% of teachers claimed that first aid treatment should not only be under the responsibility of the healthcare personnel appointed by the school, question number 8 where only 52.6% of the primary school teachers agreed that the existing chairs and tables used by the students were suitable for long period and hours of learning and also question number 14 where only 37.2% agreed that chemical waste should not be disposed via sinks.

Table 4.3.1: Attitude on Occupational Safety and Health for Primary School Teachers

(N=78)

No.	Statements	n (%)				
		1	2	3	4	5
1.	Teachers should execute and demonstrate safe act practice during laboratory activities.	0 (0.0)	0 (0.0)	13 (16.7)	40 (51.3)	25 (32.1)
2.	School shall ensure that all the toilet have been cleaned on a daily basis.	0 (0.0)	0 (0.0)	4 (5.1)	37 (47.4)	37 (47.4)
3.	Our school should ensure that the guarding is in place for falling hazards.	0 (0.0)	1 (1.3)	14 (17.9)	40 (51.3)	23 (29.5)
4.	First aid treatment is the responsibility of healthcare services personnel appointed by the school.	0 (0.0)	3 (3.8)	15 (19.2)	47 (60.3)	13 (16.7)
5.	I prefer wearing flat shoes than high heels while teaching in class.	0 (0.0)	4 (5.1)	7 (9.0)	43 (55.1)	24 (30.8)
6.	Road safety campaign shall be implemented widely at school level to our student.	0 (0.0)	0 (0.0)	8 (10.3)	46 (59.0)	24 (30.8)
7.	I believe that the existing chair and table used by the students are not suitable to be used for long period and hours or learning.	0 (0.0)	5 (6.4)	22 (28.2)	41 (52.6)	10 (12.8)
8.	Regular safety and health inspection are not necessary for school environment.	13 (16.7)	28 (35.9)	10 (12.8)	19 (24.4)	8 (10.3)
9.	The school should closely monitor the food handlers' safe food handling procedures.	0 (0.0)	0 (0.0)	8 (10.3)	46 (59.0)	24 (30.8)

10.	The school should revise the activities and responsibilities assigned to teachers from time to time.	0 (0.0)	1 (1.3)	9 (11.5)	56 (71.8)	12 (15.4)
11.	Classroom lighting system should be checked regularly for its functionality.	0 (0.0)	0 (0.0)	3 (3.8)	53 (67.9)	22 (28.2)
12.	School have a responsibility to ensure that the electrical supplies in school are well maintained.	0 (0.0)	0 (0.0)	4 (5.1)	50 (64.1)	24 (30.8)
13.	I know my school has a fire safety plan.	1 (1.3)	3 (3.8)	2 (2.6)	51 (65.4)	21 (26.9)
14.	Chemical waste could be disposed via sinks.	18 (23.1)	11 (14.1)	11 (14.1)	32 (41.0)	6 (7.7)
15.	School shall provide a water dispenser for the student to refill their water bottle for free.	2 (2.6)	0 (0.0)	3 (3.8)	57 (73.1)	16 (20.5)

Where, 1=strongly disagree, 2=disagree, 3=neither, 4=agree, 5=strongly agree

Table 4.3.2 presented the secondary school teachers' percentages of answers on attitude of OSH at school matters. 3 of the highest score were from question number 11 where 91.4% of secondary school teachers agreed that the lighting systems should be check regularly, question number 6 where 91.4% believed that road safety program should be implement widely in school and also question number 13 where 93.1% of teachers knew that their school have a fire safety plan.

Next, as for 3 questions with lowest score were question number 4 where only 39.6% of teachers believed that first aid treatment should not only be done by the healthcare personnel appointed by school, question number 7 where 51.8% of the secondary school teachers agreed that the existing chairs and tables used by the students were suitable for long

period and hours of learning and also question number 14 where only 56.9% of teachers agreed that they should be executing and demonstrating safe practices in laboratory activities.

Table 4.3.2: Attitude on Occupational Safety and Health of Secondary School Teachers (N=58)

No.	Statements	n (%)				
		1	2	3	4	5
1.	Teachers should execute and demonstrate safe act practice during laboratory activities.	4 (6.9)	0 (0.0)	2 (3.4)	23 (39.7)	29 (50.0)
2.	School shall ensure that all the toilet have been cleaned on a daily basis.	4 (6.9)	1 (1.7)	1 (1.7)	25 (43.1)	27 (46.6)
3.	Our school should ensure that the guarding is in place for falling hazards.	4 (6.9)	2 (3.4)	4 (6.9)	23 (39.7)	25 (43.1)
4.	First aid treatment is the responsibility of healthcare services personnel appointed by the school.	6 (10.3)	17 (29.3)	5 (8.6)	19 (32.8)	11 (19.0)
5.	I prefer wearing flat shoes than high heels while teaching in class.	3 (5.2)	1 (1.7)	8 (13.8)	31 (53.4)	15 (35.9)
6.	Road safety campaign shall be implemented widely at school level to our student.	4 (6.9)	0 (0.0)	1 (1.7)	21 (36.2)	32 (55.2)
7.	I believe that the existing chair and table used by the students are not suitable to be used for long period and hours or learning.	5 (8.6)	11 (19.0)	12 (20.7)	23 (39.7)	7 (12.1)
8.	Regular safety and health inspection are not necessary for school environment.	23 (39.7)	22 (37.9)	2 (3.4)	10 (17.2)	1 (1.7)

9.	The school should closely monitor the food handlers' safe food handling procedures.	4 (6.9)	0 (0.0)	3 (52)	25 (43.2)	26 (44.8)
10.	The school should revise the activities and responsibilities assigned to teachers from time to time.	4 (6.9)	0 (0.0)	2 (3.4)	37 (63.8)	15 (25.9)
11.	Classroom lighting system should be checked regularly for its functionality.	3 (5.2)	1 (1.7)	1 (1.7)	26 (4.8)	27 (46.6)
12.	School have a responsibility to ensure that the electrical supplies in school are well maintained.	4 (6.9)	0 (0.0)	3 (5.2)	32 (55.2)	19 (32.8)
13.	I know my school has a fire safety plan.	4 (6.9)	0 (0.0)	0 (0.0)	30 (51.7)	24 (41.4)
14.	Chemical waste could be disposed via sinks.	22 (37.9)	11 (19.0)	7 (12.1)	12 (20.7)	6 (10.3)
15.	School shall provide a water dispenser for the student to refill their water bottle for free.	6 (10.3)	3 (5.2)	5 (8.6)	27 (46.6)	17 (29.3)

Where, 1=strongly disagree, 2=disagree, 3=neither, 4=agree, 5=strongly agree

4.4 Practice on OSH at School of School Teachers.

Table 4.4 shows the practice level of school teachers of which 12.5% of them having poor practice level and the other 87.5% having good practice of OSH at school. Study stated that 11.5% of the primary school teachers had poor practice while 88.5% of them had good practice level. As for the secondary school teachers, 13.8% had poor practice while the other 86.2% had good practice level.

Table 4.4: Levels of Practice for the Entire Population

Practice Levels	Primary School (n=78)	Secondary School (n=58)	Total (N=136)
Poor	9 (11.5)	8 (13.8)	17 (12.5)
Good	69 (88.5)	50 (86.2)	119 (87.5)
Total	78 (100.0)	58 (100.0)	136 (100.0)

Table 4.4.1 showed the percentages of answers on practice on OSH at school questions for the primary school. 3 of the questions with the highest score would be on question 12 where teachers should be reminding students to drink water, question 13 where teachers would report to school management if anything in school are broken and finally question number 14 where teachers would ensure the lighting are adequate in their classroom.

As for 3 of the lowest scored obtained by primary school teachers were for question 5 where teachers removes their shoes after long prolonged hours of standing, question 9 where most of the teachers are not trained on first-aid and question number 10 where some teachers do not wear any Personal Protective Equipment (PPE) while handling chemical products.

Table 4.4.1: Practice on Occupational Safety and Health of Primary School Teachers

(N=78)

No.	Statements	n (%)				
		1	2	3	4	5
1.	I will allow the students to stretch their muscles after each period of class.	3 (3.8)	3 (3.8)	33 (42.3)	29 (37.2)	10 (12.8)
2.	I will not buy food that has been prepared for more than 4 hours by the school food handlers.	1 (1.3)	8 (10.2)	28 (35.9)	27 (34.6)	14 (17.9)
3.	I will inform the students of the falling hazards and the function of the guarding system.	1 (1.3)	3 (3.8)	22 (18.2)	37 (47.4)	15 (19.2)
4.	I have a coping strategies to handle the stress from work effectively.	4 (5.1)	6 (7.7)	21 (26.9)	37 (47.4)	10 (12.8)
5.	I tend to remove my shoes while there is no class to rest my feet from prolong standing.	13 (16.7)	15 (19.2)	12 (15.4)	29 (37.2)	9 (11.5)
6.	I handle and dispose of sharp instruments and wastes properly.	0 (0.0)	1 (1.3)	20 (25.6)	31 (39.7)	26 (33.3)
7.	I will inform the student of the electrical hazards that are found available in the school building structure.	1 (1.3)	5 (6.4)	18 (23.1)	36 (46.2)	18 (23.1)
8.	I will ensure that the emergency exits are not blocked during daily routine.	0 (0.0)	2 (2.6)	20 (25.6)	42 (53.8)	14 (17.9)
9.	I have been trained for first aid treatment In response to immediate emergency situation.	12 (15.4)	10 (12.8)	21 (26.9)	27 (34.6)	8 (10.3)
10.	I use personal protective equipment (PPE) while handling chemical products.	13 (16.7)	8 (10.3)	25 (32.1)	23 (29.5)	9 (11.5)

11.	I will properly dispose food waste into the garbage bin provided in the canteen.	1 (1.3)	0 (0.0)	13 (16.7)	34 (43.6)	30 (38.5)
12.	I will remind my student to drink more water during hot weather especially after a strenuous outdoor activities.	0 (0.0)	1 (1.3)	7 (9.0)	32 (41.0)	38 (48.7)
13.	I would immediately report to the school management if there is any broken or dysfunctional in any facilities in school.	0 (0.0)	0 (0.0)	10 (12.8)	37 (47.7)	31 (39.7)
14.	I will ensure that the lighting is adequate in the classroom during my class.	0 (0.0)	0 (0.0)	6 (7.7)	42 (53.8)	30 (38.5)
15.	I will raise road safety awareness issues in my class.	0 (0.0)	2 (2.6)	12 (15.4)	42 (53.8)	22 (28.2)

Where, 1=never, 2=rarely, 3=sometimes, 4=often, 5=always

Table 4.4.2 are the percentages of answers for the secondary school teachers on practice of OSH at school. 3 of the questions with highest score were question number 11 where the teachers tend to dispose of food waste into the garbage bins, questions number 12 where teachers would like to remind their students to drink more water especially during hot days and question number 14 where teachers will ensure adequate lighting are present in classrooms.

Three of the lowest score were on question number1 where very few teachers would allow their students to stretch after long hours of lessons, question number 9 where very little have first-aid competency and finally question number 10 where majority of the secondary school teachers do not use proper PPE while handling chemicals.

Table 4.4.2: Practice on Occupational Safety and Health of Secondary School Teachers

(N=58)

No.	Statements	n (%)				
		1	2	3	4	5
1.	I will allow the students to stretch their muscles after each period of class.	6 (10.3)	11 (19.0)	24 (41.4)	14 (24.1)	3 (5.2)
2.	I will not buy food that has been prepared for more than 4 hours by the school food handlers.	3 (5.2)	9 (15.5)	20 (34.5)	21 (36.2)	5 (8.6)
3.	I will inform the students of the falling hazards and the function of the guarding system.	1 (1.7)	7 (12.1)	17 (29.3)	23 (39.7)	10 (17.2)
4.	I have a coping strategies to handle the stress from work effectively.	7 (12.1)	2 (3.4)	24 (41.4)	21 (36.2)	4 (6.9)
5.	I tend to remove my shoes while there is no class to rest my feet from prolong standing.	1 (1.7)	4 (6.9)	13 (22.4)	27 (46.6)	13 (22.4)
6.	I handle and dispose of sharp instruments and wastes properly.	2 (3.4)	5 (8.6)	7 (12.1)	25 (43.1)	19 (32.8)
7.	I will inform the student of the electrical hazards that are found available in the school building structure.	1 (1.7)	7 (12.1)	9 (15.5)	29 (50.0)	12 (20.7)
8.	I will ensure that the emergency exits are not blocked during daily routine.	1 (1.7)	7 (2.1)	12 (20.7)	32 (55.2)	6 (10.3)
9.	I have been trained for first aid treatment In response to immediate emergency situation.	13 (22.4)	9 (15.5)	15 (25.9)	19 (32.8)	2 (3.4)
10.	I use personal protective equipment (PPE) while handling chemical products.	20 (34.5)	8 (13.8)	9 (15.5)	17 (29.3)	4 (6.9)

11.	I will properly dispose food waste into the garbage bin provided in the canteen.	1 (1.7)	1 (1.7)	3 (5.2)	19 (32.8)	34 (58.6)
12.	I will remind my student to drink more water during hot weather especially after a strenuous outdoor activities.	1 (1.7)	0 (0.0)	9 (15.5)	24 (41.4)	24 (41.4)
13.	I would immediately report to the school management if there is any broken or dysfunctional in any facilities in school.	1 (1.7)	0 (0.0)	9 (15.5)	29 (50.0)	19 (32.8)
14.	I will ensure that the lighting is adequate in the classroom during my class.	0 (0.0)	1 (1.7)	2 (3.4)	29 (50.0)	26 (44.8)
15.	I will raise road safety awareness issues in my class.	1 (1.7)	6 (10.3)	9 (15.5)	25 (43.1)	17 (29.3)

Where, 1=never, 2=rarely, 3=sometimes, 4=often, 5=always

4.5 Association between KAP on OSH at School among School Teachers

The association between knowledge and attitude, knowledge and practice as well as association between attitude and practice for primary school teachers are described in Table 4.5.1. Result showed that for the primary school teachers, there were a positive and weak relations (r = 0.249) between their knowledge and attitude level where the association were proven to be significant at $p = 0.028$. A positive and weak relations (r = 0.032) were also found between the knowledge and the practices level. However, the association are not reported to be significant ($p = 0.783$). Next, there were a positive and weak relations (r = 0.167) reported between attitude and practices level where they were also not significantly associated ($p = 0.143$).

Table 4.5.1: Relationship between Knowledge, Attitude and Practice for Primary School Teachers

Variables	Attitude		Practice	
	Correlation coefficient, r	*p* value	Correlation coefficient, r	*p* value
Knowledge	0.249	0.028*	0.032	0.783
Attitude	-	-	0.167	0.143

*significant *p* value at <0.05, (n=78)

*Rho Spearman

Table 4.5.2 shows the relationship between knowledge and attitude, knowledge and practice as well as between attitude and practice level for secondary school teachers. Result found that there were positive and weak relations (r = 0.040) between knowledge and attitude levels. However, the association were not reported to be significant (p = 1.768). Next, a negative and weak relations (r = -0.084) were found between knowledge and practice levels which the association were also found to not be significant (p = 0.533). Finally, a positive and relations existed between the attitude and practice level (r = 0.134) which their association were also stated to not be significant (p = 0.137).

Table 4.5.2: Relationship between Knowledge, Attitude and Practice for Secondary School Teachers

Variables	Attitude		Practice	
	Correlation coefficient, r	*p* value	Correlation coefficient, r	*p* value
Knowledge	0.040	0.768	-0.084	0.533
Attitude	-	-	0.134	0.317

*significant *p* value at <0.05, (n=58)

*Rho Spearman

4.6 Comparison of KAP Levels on Primary and Secondary School Teachers.

A correlation coefficient test was done in order to find the relationship between the KAP level on the primary and the secondary school teachers and the results found are shown in Table 4.6. This study reported a significant association (p=0.002) were found between the knowledge level of primary and secondary school teachers in which the level of knowledge for secondary school teachers (10.00) are higher than primary school teachers (8.00). There were also a significant association (p=0.015) between the attitude of the primary and secondary school teachers. It was found that the attitude level of secondary school teachers (60.50) are higher than those of primary school teachers (57.50). However, there are no significant association (p=0.385) between practice level of the primary (57.00) and secondary school (56.00) teachers.

Table 4.6: Comparison between Knowledge, Attitude and Practice on Primary and Secondary Schools

Variables	Median (IQR)		Z-statistics	*p* value
	Primary School	Secondary School		
Knowledge	8.00 (1.00)	10.00 (2.25)	-3.036	0.002*
Attitude	57.50 (8.00)	60.50 (7.00)	-2.436	0.015*
Practice	57.00 (9.00)	56.00 (12.25)	-0.869	0.385

*significant *p* value at <0.05

4.7 Association between the KAP Levels on Age and Service Duration

A correlation coefficient test was run in order to find the relationship between age and service duration of teachers with their KAP levels. The result to this analysis is shown in Table 4.7. Result found that there were a positive and weak relations between knowledge level and age (r = 0.038), attitude level and age (r = 0.088), knowledge and service duration (r = 0.059) and between attitude level and service duration (r = 0.120). Result also reported that there were a negative and weak relations between practice level and age (r = -0.099) and also between practice level and service duration (r = -0.099). However, all of these relations were found to be not significant ($p \geq 0.05$). Nevertheless, this test manage to show that an increase in age and service duration will increase their knowledge and attitude level but decrease their level of practice.

Table 4.7: KAP Correlation with Age and Service Duration as School Teachers

Variables	Age		Service Duration	
	Correlation coefficient, r	*p* value	Correlation coefficient, r	p value
Knowledge	0.038	0.658	0.059	0.494
Attitude	0.088	0.308	0.120	0.164
Practice	-0.099	0.250	-0.009	0.917

*Significant *p* value at <0.05, (n=58)

*Rho Spearman

4.8 Association between KAP and Experience of Safety and Health-related Training

Table 4.8 shows the relationship between level of knowledge and the teachers' safety and health training, first aid trainings, emergency and response training, chemical management and spillage training as well as their experience in handling any accidents at school. Result showed that there are no significant association to be found.

Table 4.8: Relationship between Knowledge and Experience of Safety and Health-related Training

Training/ Experience	Knowledge (%)			X^2	*p* value
	Low	Medium	High		
Safety and Health					
Yes	21 (15.4)	20 (14.7)	2 (1.5)	1.253	0.534
No	47 (34.6)	37 (27.2)	9 (6.6)		
First Aid					
Yes	29 (21.3)	29 (21.3)	4 (2.9)	1.257	0.533
No	39 (28.7)	28 (20.6)	7 (5.1)		
Emergency Response					
Yes	22 (16.2)	27 (19.9)	4 (2.9)	2.974	0.226
No	46 (33.8)	30 (22.1)	7 (5.1)		
Chemical Management/ Spillage					
Yes	7 (5.1)	8 (5.9)	2 (1.5)	0.750	0.687
No	6(44.9)	49 (36.0)	9 (6.6)		
Handling Accidents					
Yes	21 (15.4)	23 (16.9)	3 (2.2)	1.510	0.470
No	47 (34.6)	34 (25.0)	8 (5.9)		

*Significant *p* value at <0.05 with Yates' correction for continuity.

Table 4.9 shows the relationship between level of attitude and the teachers' safety and health training, first aid trainings, emergency and response training, chemical management and spillage training as well as their experience in handling any accidents at school. Result showed that there are no significant association to be found.

Table 4.9: Relationship between Attitude and Experience of Safety and Health-related Training

Training/ Experience	Attitude (%)			X^2	*p* value
	Negative	Normal	Positive		
Safety and Health					
Yes	2 (1.5)	0 (0.0)	41 (30.1)	4.029	0.133
No	3 (2.2)	8 (5.9)	82 (60.3)		
First Aid					
Yes	1 (0.7)	3 (2.2)	58 (42.6)	1.652	0.438
No	4 (2.9)	5 (3.7)	65 (47.8)		
Emergency Response					
Yes	1 (0.7)	1 (0.7)	51 (37.5)	3.435	0.180
No	4 (2.9)	7 (5.1)	72 (52.9)		
Chemical Management/ Spillage					
Yes	1 (0.7)	0 (0.0)	16 (11.8)	1.429	0.489

No	4 (2.9)	8 (5.9)	107 (78.7)		
Handling Accidents					
Yes	1 (0.7)	2 (1.5)	44 (32.4)	0.872	0.647
No	4 (2.9)	6 (4.4)	89 (58.1)		

*Significant p value at <0.05 with Yates' correction for continuity

Table 4.10 shows the relationship between practice level and the teachers' safety and health training, first aid trainings, emergency and response training, chemical management and spillage training as well as their experience in handling any accidents at school. Result showed that there were a significant association ($p = 0.003$) found between levels of practice and the safety and health training. This showed that all the teachers who went for safety and health training have a good practice level on OSH at school matters. This study also found another significant association ($p = 0.008$) between practice level and experience in handling accidents at school. It is stated that a significant number of teachers who have experience in handling school accidents scored good level of practice.

Table 4.10: Relationship between Practice and Experience of Safety and Health-related Training

Training/ Experience	Practice (%)		X^2	p value
	Poor	Good		
Safety and Health				
Yes	0 (0.0)	43 (31.6)	8.983	0.003*
No	17 (12.5)	76 (55.9)		

First Aid				
Yes	5 (3.7)	57 (41.9)	2.050	0.152
No	12 (8.8)	62 (45.6)		
Emergency & Response				
Yes	3 (2.2)	50 (36.8)	3.714	0.054
No	14 (10.3)	69 (50.7)		
Chemical Management/				
Spillage				
Yes	0 (0.0)	17 (12.5)	2.776	0.096
No	17 (12.5)	102 (75.0)		
Handling Accidents				
Yes	1 (0.7)	46 (33.8)	7.065	0.008*
No	16 (11.8)	73 (53.7)		

*Significant *p* value at <0.05 with Yates' correction for continuity

CHAPTER 5

DISCUSSION

5.1 Socio-demographic of Primary and Secondary School Teachers

The result in this study showed that the majority of the respondents for both the primary and secondary school were females. This is due to the reason that there are more female teachers than male teachers at found at school. Datuk Dr Wee Ka Siong (2015) stated that there are more than 90.0% of teachers in Malaysia are females.

5.2 Knowledge on OSH at School of School Teachers

The knowledge level of school teachers found through this study were low (50.0%). Past study done in Nigeria also reported teachers to having low knowledge levels which were presumed to be due to the teachers receiving no special training aside from their professional training on education (Ofovwe, 2007). However, this study also showed that the secondary school teachers tend to have a higher knowledge levels compared to the primary school teachers since 15.5% of teachers from secondary school had a high knowledge level in comparison to primary school teachers at 2.6%. There were also a significant association (p=0.002) found between the knowledge of primary and secondary school teachers which could be due to the exposure to different educational background, school environment, students and subject taught in school. For instance, past study done by

Al-Beiruti (1997) reported that knowledge levels on oral hygiene of secondary school teachers were higher compared to the primary school teachers and it could be due to different educational background.

5.3 Attitude on OSH at School of School Teachers

Through this study, it showed that the majority of the school teachers' level of attitude were found to be positive (90.4%), for both primary (88.5%) and secondary (93.1%) schools. This also proved that the secondary school teachers tends to have a higher level of attitude compare to primary school teachers. It was also found that there were a significant association (p=0,015) between the attitude levels of the primary and secondary school teachers. This may be due to the fact that secondary school teachers are exposed to a more hazardous environment and broader curricular syllabus and subjects compared to primary school teachers. Therefore, secondary school teachers tends to be more aware of their surroundings and the danger around them. A study done in the past stated that a safety culture in an organization are related to attitude, behavior and the environmental factors implemented in order to create and maintain an effective safety and health managements system (Misnan, 2011).

5.4 Practice on OSH at School of School Teachers

In addition, it was also stated that the practices on OSH among school teachers' level were also good (87.5%), where primary school teachers' levels (88.5%) reported to be higher

than the secondary school teachers' (86.2%). This may be due to the way primary school teacher interacts with their students. Primary students tend to learn and understand better from examples sets by their teachers. The teachers may be aware that their actions will be followed by their student thus urging them into practicing more on OSH matters in order to set a good example.

5.5 Association between KAP on OSH at School among School Teachers

Furthermore, results also showed that for the primary school teachers there were a significant association (p=0.028) between knowledge and attitude level. This shows that attitude levels of the teachers does affect their knowledge levels. As for secondary school, it was found that there were a weak and negative relation between knowledge and practice levels. This would result in teachers with a higher practice levels to have a lower knowledge level. This could point out that practice on OSH at school could depend on the willingness of the teachers and not fully dependent on their knowledge capabilities. However, result from previous study shows that those with a high knowledge level would have a higher practice level (Htun, 2013).

5.6 Association between the KAP Levels on Age and Service Duration

Besides that, it was also found that teachers with longer work experience tends to likely be poor at practice of OSH at school. This may be because the teachers were getting too used to the environment as well as that the work had become a normal routine work that had been

repeated for many years without anything bad happening giving the teachers a fall sense of security. They might believe that practicing or changing their way of handling things to fit the OSH at school requirements to be null, void or unnecessary. This is opposite to a study done in Myanmar where the result showed that the teachers with a longer work experience were having a higher practice level (Htun, 2013).

Moreover, results also found the older the teachers' age the poorer their practice levels. This findings were similar to previous studies done by San- San Htway (1998) and Htun (2013) where an increase in age of teachers also increases their practice level. However there are no significant association (p=0.250) between age of teachers and their practice level in contrast to past study which reported a significant association existing between the level of practice of the teachers and their age (Htun, 2013).

5.7 Association between KAP and Possible Contributing Factors Experience of Safety and Health-related Training

In addition, this study reported a significant association (p = 0.003) found between levels of practice and the safety and health training where it was stated that all of the teachers who went for safety and health training would have a good practice level on OSH at school matters. This study also presented another significant association (p = 0.008) between practice level and experience in handling accidents at school. It is stated that a significant number of teachers who have had experiences in handling school accidents possesses a good level of practice since these teachers would be able to know how the accidents occurred giving them a heads up in the future as well as new experience based knowledge on possible

actions or conditions that may lead to accidents or that were not safe to exist within school compound.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

Overall, this study found that the knowledge attitude of teachers were low while their attitude and practice level were positive and good respectively. Study also reported that the knowledge and attitude level of secondary school teacher to be higher than the primary school teachers. However, the practice level of the primary school teacher are higher than the secondary school teachers'. Study also stated that a significant association exist between knowledge and attitude level of school teachers. Finally, study also reported that teachers who attended safety and health training and those who had experience handling accidents at school tent to have a good practice level.

6.2 Study Limitation

This study was designed as a cross sectional study thus, it has some limitations. The sample size calculation done prior to the data collection was 644, however due to the lack of volunteer as well as school available only 136 respondents were obtained. Besides that, an information bias may also be present especially involving the questions asked where the answer chosen might not reflect their actual actions. Since the respondents were given a

week to complete the questionnaire, some of them have already forgotten about the questionnaire and some also lost them.

6.3 Recommendation

Findings from this study would suggest that more educations on occupational safety and health at school matters should be given to the educators in order to increase their knowledge level before focusing on education for the students. Besides that, a safety and health learning could be integrated with the teacher's professional training module. Avoid having a one-off or any ad-hoc safety and health training at school level and a sustainable safety and health learning module should be planned and designed together with OSH practitioner instead. Turning and implementation of the knowledge and attitude on OSH into practices by prioritizing safety and health facility settings at school.

Furthermore, as for future studies, try to find suitable timing and location with the consent and cooperation from the respondent to answer the questionnaire in one sittings and without any disturbance in order to avoid any information bias or missing respondents.

REFERNCES

Adib, Z. A. (2016, April 23). Premis Terbuka Jadi Tempat Ular Berlindung Ketika Cuaca Panas. *Kosmo Online*. Retrieved from http://www.kosmo.com.my/terkini/premis-terbuka-berisiko-jadi-tempat-ular-berlindung-ketika-panas-1.291634

Al-Beiruti N. (1997). Oral Health Behaviour among a Sample of School Teachers, Physicians and Nurses in the Syrian Arab Republic. *East Mediterranean Health,* vol. 3, pp. 258-62

Berandi, R. (2016, December 12). ASEAN Safe School Initiative: Rollout Manual for Operationalisation of ASEAN Common Framework for Comprehensive School Safety. *Reliefweb*. Retrieved from https://reliefweb.int/report/world/asean-safe-schools-initiative

Bibbings, R. (2003). Hearsy and Heresy, The ROSPA occupational Health and Safety Journal, July, pp 51-52.

Blackburn, T. H. J. (2007). Canadian Centre for Occupational Health and Safety Performance Report.

Carbino,V. (2010). A study of student perception of school safety at an urban high school. *Journal of School Psychology*, vol. 46(5), pp. 507-535.

Department of Occupational Safety and Health. (2008). Guidelines for Hazard Identification, Risk Assessment and Risk Control (HIRARC).

Firdaus M., Ismail, K. & Irniza R. (2017). Assessing the Level of Safety and Health of Schools in Klang Valley Using Hazard Identification, Risk Assessment and Risk Control (HIRARC).

Htun, Y. M., Lwin, K. T., Oo, N. N., Soe, K., & Sein, T. T. (2013). Knowledge, Attitude and Reported Practice of Primary School Teachers on Specified School Health Activities in Danuphyu Township, Ayeyarwaddy Region, Myanmar. *South East Asia Journal of Public Health,* ISSN: 2220-9476, vol. 3(1), pp. 24–29. Retrieved from http://www.banglajol.info/index.php/SEAJPH/article/view/17707/12414

Husna, N., Mokhtar, K., Ismail, R., Sulaiman, A., et al. (2018). A survey on Occupational Safety and Health Awareness among School Teachers in Kelantan, Malaysia. Advances in Social & Occupational Ergonomics, vol. 39(1), pp. 39-44.

Ivan Loh (2015, Jun 5). Fewer Men in the Teaching Profession. *The Star*. Retrieved from https://www.thestar.com.my/metro/community/2015/06/05/fewer-men-in-the-teaching-profession-many-said-to-be-shying-away-due-to-lack-of-interest-and-other-

Jakab, Z. (2011). Designing the Road to Better Health and Well-being in Europe. *14th European Health Forum Gastein*, vol. 3, pp. 1-16.

Jayaratne, K. (2012). Ergonomic considerations in school environments-The need for widening the scope. *Work*, vol. 41(SUPPL.1), pp. 5543–5546. http://doi.org/10.3233/WOR-2012-0877-5543

Junaninah S. (2002). Epidemiology of School Injuries in Malaysia. *Jurnal Kesihatan Masyarakat*, vol 8(S), pp. 14-22.

Kadauf, H. A., & Quadri, K. M. (2017). *Latin Legal Phrases, Terms and Maxims as Applied by the Malaysian Courts*. Singapore: Patridge Publishing.

Kaliyaperumal, K. (2004). IEC; Expert, Diabetic Retinopathy Project. Guideline for Conducting a Knowledge, Attitude, and Practice (KAP) Study. *Community Ophthalmology*, vol. 4, pp. 7-9

Kaur, N., Savitri, & Kaur, M. (2017). A Descriptive Study to Assess the Level of Knowledge Regarding the First Aid Management among School Teachers in Selected Schools of District Mohali, Punjab. *Journal of Health & Medical Informatics*, vol. 8(4), pp. 8–11. https://doi.org/10.4172/2157-7420.1000288

Lunenburg, F. C. (2010). Environmental Hazards in America's Schools, vol. 4(1), pp. 1–10.

Makhtar, T. A. T., Dahlan, A., Mansuri, M. G., & Danis, A. (2016). Interdependence in Malay Older People Who Live in the Institutions: An Interpretative Phenomenological Analysis. *Procedia- Social and Behavioral Sciences*, vol. 234, pp. 98-105

Mamogale, H. M. (2011). Assessing disaster preparedness of learners and educators in Soshanguve North schools, vol.2, pp. 117-123. http://doi.org/10.1016/j.jvolgeores.2007.12.010

Misnan, M. M. (2011). Pembangunan Budaya Kesela-matan di Tempat Kerja. Universiti Teknologi Malaysia. Johor Bharu.

Mostafa, B. N. (2014). Occupational Health and Safety Training: Knowledge, Attitude and Practice among Technical Education Students. *Egyptian Journal of Occupational Medicine*, vol. 38(2), pp. 153–165. Retrieved from http://www.ejom.eg.net/pdf/2014/2/3.pdf

New Straits Times (2016, October 7). Create Culture of Awareness in Schools. Retrieved from https://www.nst.com.my/news/2016/10/178664/create-culture-awareness-schools

Odeyemi, K., & Chukwu, E. (2015). Knowledge, attitude and practice of school health among primary school teachers in Ogun State. *Nigerian Journal of Paediatrics*, vol. 42(4), pp. 340–345. Retrieved from www.ajol.info/index.php/njp/article/viewFile/122442/111968

Ofovwe GE, Ofili AN. (2007). Knowledge, Attitude and Practice of School Health Programme among Head Teachers of Primary School in Egor LGA of Edo State. *Annals Afr Med*, vol. 6(3), pp. 99 – 103.

Online Oxford Dictionaries, (n.d). Retrieved from https://en.oxforddictionaries.com

Ronan, K. R., & Johnston, D. M. (2001). *Hazards Education in Schools: Current Findings, Future Directions*, vol. 4, pp. 1–7.

Ronan, K. R., Johnston, D. M., Daly, M., & Fairley, R. (2001). School children's risk perceptions and preparedness: A hazards education survey. *Australasian Journal of Disaster and Trauma Studies*, vol. 5(1), Retrieved from http://ovidsp.ovid.com/ovidweb.cgi?T=JS&CSC=Y&NEWS=N&PAGE=fulltext&D=psyc3&AN=2001-03478-002%5Cnhttp://oxfordsfx.hosted.exlibrisgroup.com/oxford?sid=OVID:psycdb&id=pmid:&id=doi:&issn=1174-4707&isbn=&volume=5&issue=1&spage=No&pages=No+Pagination+Specified&dat

Safety, O. (2016). Occupational Safety and Health. *Journal of Occupational Safety and Health*, vol. 13(1), pp. 17–26. http://doi.org/10.2307/2523548

Samuel, M., Tee, M. Y., & Symaco, L. P. (2017). *Education in Malaysia: Developments and Challenges*. Malaysia: Springer.

San-San-Htway. Perspective of School Teachers on School Health in Yangon Division. *MMedSc (Public Health)*. Yangon: University of Medicine, 1998.

Scheps, S. B., Dewey Evans, G. (1987). *Epidemiology of School Injuries: A 2-year Experience in a Municipal Health Department. Pediatrics*, vol. 79, pp. 69-75.

Sekiwu, D., & Milly, K. (2014). Building safer secondary schools in Uganda through collective commitment to health and safety compliance. *International Journal of Educational Policy Research and Review*, vol. 1(4), pp. 47–53. http://doi.org/http://dx.doi.org/10.15739/IJEPRR.003

Sekiwu, D., Kabanda, M., Naluwemba, E. F., & Kagwa, V. T. (2015). *DonnishJournals*, vol. 2(2), pp. 32–38.

Shahar, F.M. (2016, March 13). Introducing OSH Programmes in Schools. *New Straits Times*. Retrieved from https://www.nst.com.my/news/2016/03/132454/introducing-osh-programmes-schools

Singh, S. (2017, July 14). Classmates killed in accident after school. *The Star*. Retrieved from https://www.thestar.com.my/news/nation/2017/07/14/classmates-killed-in-crash/

Situational Analysis on Safety and Health in Primary School in Kota Bharu. (2009), (January).

Ssekamanya, S. ., Badzis, M., Ismail, K., & Abduludin, D. S. (2016). Predictors of School Safety Awareness among Malaysian Primary School Teachers. *European Journal of Social Sciences Education and Research*, vol. 6(1), pp. 88–93.

Tee, F. K. (2004). Strategic Tripartite Alliance in Establishing a Safe School Programme in Malaysia. *School Programme in Malaysia*, vol. 1 pp. 119–125.

Appendix 1

Respondent's Consent Form

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

FORM 2.4: RESPONDENT'S INFORMATION SHEET AND INFORMED CONSENT FORM

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

1.STUDY TITLE

Knowledge, attitude and practice (KAP) on occupational safety and health at school among school teachers in Serdang area.

2. INTRODUCTION:

Safety and health involves regulations and procedures intended to prevent accidents or injury in workplaces or public environments. In Malaysia, an act is available in order to ensure the safety, health and welfare of persons at work which is known as the Occupational Safety and Health Act 1994 (Act 514), Regulations and Orders. There are a lot of accidents occurring at school which is due to the unsafe and unhealthy school environments. There was a case where a 14 year old student, Nik Mohd Lutfi Nik Kamarudin which was studying at SMK Tenku Indera Petra 2, died after being hit by a goalpost in the head while playing football with his friends in 2016. The goalpost was found to be rusty, very old and damaged which is due to lack of proper maintainance. Another case was where 22 students from a secondary school in Taman Tun Dr Ismail suffered skin irritation after sulphuric acid were broken and spilled at their school laboratory also occuring in 2016.

This study will assess the Knowledge, Attitude and Practice (KAP) level on safety and health of school teachers since it is the best way to integrate and create a safe and healthy environment at school is by providing the right knowledge, instilling the safety awareness and also practicing the safety precautionary measures to control or eliminate the hazard at the school environment.

3. WHAT WILL YOU HAVE TO DO?

Once you understand the study background, you should sign up the consent form as enclosing below in Section 9 (Consent Form) to indicate your interest and willingness in participating in this study volntarily. Should you agree to participate in this study, a validated questionnaire will be passed to you by the researcher. You are advised to complete the questionnaire and submit it back to the researcher upon completion.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?

Teachers who are still in training should not participate in the study.

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

Respondent will understand their knowledge, attitude and practice level on safety and health at school. This study can also help respondent to understand and gain more knowledge regarding safety and health at school and also the right way of preventing or controlling hazards.

(b) TO THE INVESTIGATOR?

The findings to this study will provide evidence-based data relating to the knowledge, attitude ad practice of safety and health at school among school teachers. This study be able to assist to understand that there could be more knowledge that the teachers could be exposed that will be enable them to create a safe and healthy environment at school.

6. WHAT ARE THE POSSIBLE RISKS?

There are no possible risk known from joining this study.

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

All the information and identity that are provided by the repondents will remain confidential and will solely used for research proposes only

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

Should you have further enquiry, kindly contact the researcher or the project leader below for clarification.

Nursyuhada Binti Mohamad Yusoff
(Researcher)
BSc. (Environmental & Occupational Health)
Faculty of Medcine and Health Sciences
Universiti Putra Malaysia
019-4009680
nursyuhadayusoff95@gmail.com

Dr. Vivien How
(Project Leader)
Department of Environmental Health and Occupational Health
Faculty of Medcine and Health Sciences
Universiti Putra Malaysia
Tel: 03-89472396/ faks: 03-89472395
vivien@upm.edu.my

Please initial here if you have read and understood the contents of this page_____

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

Respondent will understand their knowledge, attitude and practice level on safety and health at school. This study can also help respondent to understand and gain more knowledge regarding safety and health at school and also the right way of preventing or controlling hazards.

(b) TO THE INVESTIGATOR?

The findings to this study will provide evidence-based data relating to the knowledge, attitude ad practice of safety and health at school among school teachers. This study be able to assist to understand that there could be more knowledge that the teachers could be exposed that will be enable them to create a safe and healthy environment at school.

6. WHAT ARE THE POSSIBLE RISKS?

There are no possible risk known from joining this study.

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

All the information and identity that are provided by the repondents will remain confidential and will solely used for research proposes only

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

Should you have further enquiry, kindly contact the researcher or the project leader below for clarification.

Nursyuhada Binti Mohamad Yusoff
(Researcher)
BSc. (Environmental & Occupational Health)
Faculty of Medcine and Health Sciences
Universiti Putra Malaysia
019-4009680
nursyuhadayusoff95@gmail.com

Dr. Vivien How
(Project Leader)
Department of Environmental Health and Occupational Health
Faculty of Medcine and Health Sciences
Universiti Putra Malaysia
Tel: 03-89472396/ faks: 03-89472395
vivien@upm.edu.my

Please initial here if you have read and understood the contents of this page_____

9. CONSENT

I ..... Identity Card No. .....
address.....
.....hereby voluntarily agree to take part in the research stated above *(clinical /drug trial/video recording/ focus group/interview-based/ questionnaire-based).

I have been informed about the nature of the research in terms of methodology, possible adverse effects and complications (as written in the Respondent's Information Sheet). I understand that I have the right to withdraw from this research at any time without giving any reason whatsoever. I also understand that this study is confidential and all information provided with regard to my identity will remain private and confidential.

I* wish / do not wish to know the results related to my participation in the research

I agree/do not agree that the images/photos/video recordings/voice recordings related to me be used in any form of publication or presentation (if applicable)

* delete where necessary

Signature ..... Signature .....
(Respondent) (Witness)

Date :..... Name :.....

I/C No. :.....

I confirm that I have explained to the respondent the nature and purpose of the above-mentioned research.

Date ..... Signature .....
(Researcher)

Appendix 2

Respondent's Questionnaire

DEPARTMENT OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH

FACULTY OF MEDCINE AND HEALTH SCIENCES

UNIVERSITI PUTRA MALAYSIA

KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) ON SAFETY AND HEALTH AT SCHOOL AMONG SCHOOL TEACHERS IN SERDANG AREA

The instruction to participant:

1. Read the instructions clearly
2. The questions consist of four sections (Section A, B, C and D).
3. You are required to answer all of the questions.

SECTION A: Socio-Demographic Characteristics

Direction: Please read each statement carefully and tick (√) or fill in your answer.

1. Gender : Male ☐
   Female ☐
2. Age : _____
3. Ethnicity : Malay ☐ Chinese ☐
   Indian ☐ Others (please specify):_____
4. Name of School : _____
5. Years of working as a teacher:_____ years
6. Subject teach : _____
7. Have you ever went into any training involving safety and health?
   No ☐ Yes ☐ (please specify):_____
8. Have you ever gone for first aid training?
   No ☐ Yes ☐
9. Have you ever been to any Emergency and Response training?
   No ☐ Yes ☐
10. Have you ever went for any chemical management/spillage training?
    No ☐ Yes ☐
11. Have you ever handled any accidents occurring at school?
    No ☐ Yes ☐
12. What is your educational level?
    Graduate degree ☐ Post-graduate degree ☐
    Others (please specify): _____

SECTION B: Knowledge on Occupational Safety and Health at School

Direction: Please read each statement carefully and tick (√) for your answer.

No.	STATEMENT	YES	NO	DO NOT KNOW
1.	School children are considered safe and healthy in the school region.			
2.	Being healthy is when you are free from any disease or infirmity.			
3.	School is one of the workplace that is covered under the Occupational Safety and Health Act 1994.			
4.	Students' concentration in the class can be affected by the classroom lighting system.			
5.	Un-ergonomic chairs and tables will affect the students' learning performance in the class.			
6.	The electrical wiring shall be reinstalled every 25 years for safety purposes.			
7.	Heat stress can cause death.			
8.	Poor food handling procedures will cause foodborne diseases.			
9.	School is supposed to be a safe and healthy environment in its nature.			
10.	Panadol is one of the crucial items to be included in the first aid kit.			
11.	There are no particular safety and health hazards in school environment.			
12.	Fire safety plan is an optional plan to ensure a safe response and evacuation procedure during emergency situation.			
13.	Prolong standing during class will increase the risk of getting musculoskeletal disorders.			
14.	Teachers are among the high risk professions of			

getting mental health problem from work.

15. Improper personal hygiene will not increase the incidence of waterborne diseases.

SECTIONS C: Attitude towards Safety and Health at School.

Direction: Please read each statement carefully and tick (√) for your answer.

1	2	3	4	
Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree

NO.	STATEMENT	1	2	3	4	5
1.	Teachers should execute and demonstrate safe act practice during laboratory activities.					
2.	School shall ensure that all the toilet have been cleaned on a daily basis.					
3.	Our school should ensure that the guarding is in place for falling hazards.					
4.	First aid treatment is the responsibility of healthcare services personnel appointed by the school.					
5.	I prefer wearing flat shoes than high heels while teaching in class.					
6.	Road safety campaign shall implemented widely at school level to our student.					
7.	I believe that the existing chair and table used by the students are not suitable to be used for long period and hours or learning.					
8.	Regular safety and health inspection are not necessary for school environment.					
9.	The school should closely monitor the food handlers' safe food handling procedures.					
10.	The school should revise the activities and					

responsibilities assigned to teachers from time to time.

11. Classroom lighting system should be checked regularly for its functionality.
12. School have a responsibility to ensure that the electrical supplies in school are well maintained.
13. I know my school has a fire safety plan.
14. Chemical waste could be disposed via sinks.
15. School shall provide a water dispenser for the student to refill their water bottle for free.

SECTION D: Practice regarding Safety and Health Prevention.

Direction: Please read each statement carefully and tick (√) your answer.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

No.	STATEMENT	1	2	3	4	5
1	I will allow the student to stretch their muscles after each period of class.					
2.	I will not buy food that has been prepared for more than 4 hours by the school food handlers.					
3.	I will inform the students of the falling hazards and the function of the guarding system.					
4.	I have a coping strategies to handle the stress from work effectively.					
5.	I tend to remove my shoes while there is no class to rest my feet from prolong standing.					
6.	I handle and dispose of sharp instruments and wastes properly.					

7.	I will inform the student of the electrical hazards that are found available in the school building structure.					
8.	I will ensure that the emergency exits are not blocked during daily routine.					
9.	I have been trained for first aid treatment In response to immediate emergency situation.					
10.	I use personal protective equipment (PPE) while handling chemical products.					
11.	I will properly dispose food waste into the garbage bin provided in the canteen.					
12.	I will remind my student to drink more water during hot weather especially after a strenuous outdoor activities.					
13.	I would immediately report to the school management if there is any broken or dysfunctional in any facilities in school.					
14.	I will ensure that the lighting is adequate in the classroom during my class.					
15.	I will raise road safety awareness issues in my class.					

Appendix 3

MOE's Letter

Appendix 4

School's Permission Letters

Appendix 5

Ethical Approval

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

Research title	:	**Knowledge, Attitude and Practice (KAP) on Occupational Safety and Health at School Among School Teachers in Serdang Area**
Study Site	:	**Serdang**
JKEUPM Ref No.	:	**JKEUPM-2017-185**
Researcher	:	**Nursyuhada bt Mohamad Yusoff**
Supervisor	:	**Dr. Vivien How**

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 15/12/2017
3. Respondent Information Sheet & Consent (Malay), Version 2 dated 15/12/2017
4. Proposal (English), Version 3 dated 3/12/2017
5. Questionnaire (English), Version 1 dated 31/10/2017
6. Curriculum Vitae of:
   a. Dr. Vivien How

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

Decision by JKEUPM:

[X] Approved

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

[ ] Disapproved

Please note that the approval is VALID UNTIL 3 JANUARY 2019

Researchers should comply with the following:

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

II. **Ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.**