



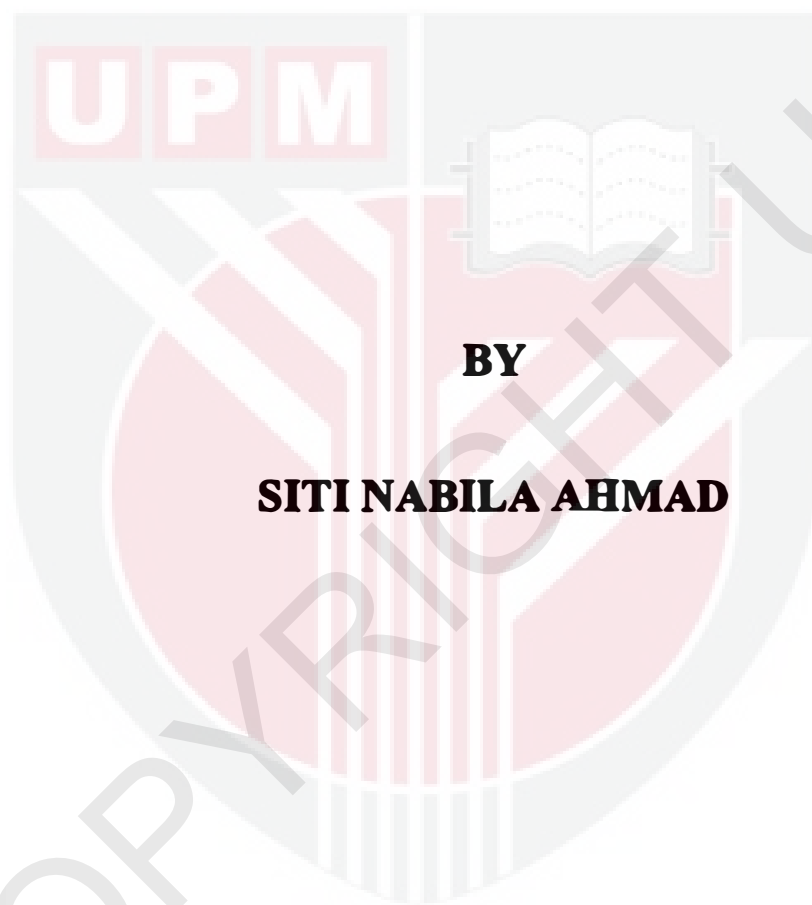
UNIVERSITI PUTRA MALAYSIA

***THE EFFECTIVENESS OF FIRE AND BURNS AT HOME EDUCATION
AMONG PRIMARY SCHOOL CHILDREN IN HULU LANGAT,
SELANGOR***

SITI NABILA AHMAD

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AMONG PRIMARY SCHOOL CHILDREN IN HULU LANGAT,
SELANGOR**



**BY
SITI NABILA AHMAD**

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

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ABSTRACT

THE EFFECTIVENESS OF FIRE AND BURNS AT HOME EDUCATION AMONG PRIMARY SCHOOL CHILDREN IN HULU LANGAT, SELANGOR

SITI NABILA AHMAD

Introduction: Fire and burn injuries in children are reported to be the most prevalent traumatic injuries around the world and a serious concern for children in Malaysia. In Malaysia, a child dies from a fire or burn injuries in every two weeks. Children are one of the highest risk groups of those who experience fire and burn related deaths and injuries. Most studies suggest that fire and burns in children occur most frequently in the home, with different level of vulnerability among children living in rural and urban areas. Further research in these areas is needed so that model intervention programmes can be developed to combat this issue. **Objectives:** To study the effectiveness of fire and burns at home education among primary school children in Hulu Langat, Selangor. **Methodology:** This study used pre-test and post-test Quasi Experimental design to evaluate the effectiveness of fire and burns at home education among primary school children in Hulu Langat, Selangor. Students were divided into control and experimental groups. Experimental group was introduced with intervention learning model. Both groups were distributed with self-administered, validated and pre-tested questionnaires regarding their knowledge on fire and burns at home. Descriptive analysis was used for social-demographic distribution. As the data were normally distributed, Independent T-test was performed to compare between two unpaired groups while Paired T-test was used to compare the knowledge score before-after the introduction of learning model. Data was analysed using SPSS version 21. **Results and Discussion:** There was a significant improvement in the knowledge level among the experimental group after they participated in the educational session ($p < 0.001$). The background knowledge level between control and experimental groups were not significantly different ($p = 0.97$). However, a higher knowledge level was significantly seen in a sub-group of urban school compared to rural school ($p < 0.001$). **Conclusion:** Home related injuries involving fire and burn are indeed a growing public health problem. Therefore, educational and intervention program are necessary to improve the knowledge level of the children. This improvement is expected to encourage the children to mould behaviour from young ages so that safety and preventive methods become a practice.

Keywords: Fire and burn, Home injuries, Intervention learning model, School children, Injury prevention

ABSTRAK

TAHAP KEBERKESANAN PROGRAM PEMBELAJARAN KEBAKARAN DI RUMAH DALAM KALANGAN PELAJAR SEKOLAH RENDAH DI DAERAH HULU LANGAT, SELANGOR

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Pengenalan: Kecederaan berkaitan api dan kebakaran dalam kalangan kanak-kanak merupakan satu isu global dan menimbulkan kebimbangan yang serius terhadap kanak-kanak di Malaysia. Di Malaysia, seorang kanak-kanak dilaporkan mati akibat kecederaan berkaitan api pada setiap dua minggu. Hal ini demikian kerana kanak-kanak merupakan antara kumpulan yang mempunyai risiko tertinggi untuk mengalami kecederaan atau kematian yang berpunca daripada kemalangan api dan kebakaran. Kebanyakan kajian menunjukkan bahawa kemalangan api dan kebakaran pada kanak-kanak sering berlaku dalam kawasan rumah, dengan tahap risiko yang berbeza pada kanak-kanak yang tinggal di bandar dan luar bandar. Justeru, kajian lanjut dalam bidang ini amat diperlukan supaya langkah pencegahan dapat dirangka bagi mengatasi permasalahan ini. **Objektif:** Untuk mengkaji tahap keberkesanan program pembelajaran kebakaran di rumah dalam kalangan pelajar di sekolah rendah di daerah Hulu Langat, Selangor. **Metodologi:** Kajian ini menggunakan kaedah “Quasi Experimental” di mana para pelajar perlu menjawab borang kaji selidik sebelum dan selepas mengikuti program pembelajaran. Langkah ini adalah untuk menilai tahap keberkesanan program pembelajaran kebakaran di rumah dalam kalangan kanak-kanak sekolah rendah di daerah Hulu Langat, Selangor. Pelajar dibahagikan kepada dua kumpulan iaitu kumpulan kawalan dan eksperimen. Kumpulan eksperimen diperkenalkan dengan intervensi program pendidikan tentang api dan kebakaran di rumah. Kedua-dua kumpulan diedarkan dengan borang soal selidik, yang telah disahkan dan disemak terlebih dahulu. Analisis deskriptif digunakan untuk taburan sosial-demografi. Oleh kerana data adalah normal, “Independent T-test” dijalankan untuk membandingkan antara dua kumpulan yang tidak berkait manakala “Paired T-test” digunakan untuk membandingkan skor pengetahuan sebelum dan selepas pengenalan model pembelajaran. Data dianalisis dengan menggunakan SPSS versi 21. **Keputusan dan Perbincangan:** Terdapat peningkatan yang signifikan pada tahap pengetahuan pelajar dalam kalangan kumpulan eksperimen selepas mereka mengambil bahagian dalam sesi pendidikan ($p < 0.001$). Tahap pengetahuan antara kumpulan kawalan dan eksperimen sebelum program pendidikan adalah tidak signifikan ($p = 0.97$). Walaubagaimanapun, tahap pengetahuan yang tinggi dilihat dengan ketara dalam kumpulan sekolah bandar berbanding sekolah luar bandar ($p < 0.001$). **Kesimpulan:** Kemalangan berkaitan api dan objek panas yang berlaku di rumah merupakan masalah kesihatan awam yang semakin membimbangkan. Oleh itu, program pendidikan dan inovasi adalah perlu untuk meningkatkan tahap pengetahuan kanak-kanak mengenai isu ini. Peningkatan dalam pengetahuan api dan kebakaran ini diharapkan dapat menggalakkan kanak-kanak untuk membentuk tingkah laku dari usia muda supaya langkah keselamatan dan pencegahan menjadi amalan seharian.

Kata kunci: Api dan kebakaran, Kemalangan di Rumah, Intervensi Model Pembelajaran, Pelajar Sekolah Rendah, Mencegah Kemalangan

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LIST OF ABBREVIATIONS

ICDO	International Civil Defense Organisation
MoE	Ministry of Education
SAVIR	The Society for Advancement of Violence and Injury Research
STIPDA	State and Territorial Injury Prevention Director Association
UHSA	Institution of Engineers Malaysia
UPM	Universiti Putra Malaysia
WHO	World Health Organisation

CHAPTER 1

INTRODUCTION

1.1 Background

Child injury is a worldwide problem. Injury is a complex word that cannot be easily defined. The Society for advancement of Violence and Injury Research (SAVIR) and the State and Territorial Injury Prevention Directors Association (STIPDA) Joint Committee (2005) describe injury as any unintentional or intentional destruction to the body resulting from acute exposure to chemical energy, mechanical, thermal or electrical that exceeds a threshold of tolerance in the body or from the absence of such essentials as heat or oxygen. Injuries can be classified into two categories which are unintentional and intentional injuries. The SAVIR-STIPDA Joint Committee (2005) gives definition to unintentional injury as one that is judged to have occurred without anyone intending harm be done; in many settings, these are termed accidental injuries.

Unintentional injuries consist of that subset of injuries for which there is no evidence of predetermined intent (Norton *et al.*, 2006). Every day around the world the lives of more than 2000 families are torn apart by the loss of a child to accidents that are also known as unintentional injuries. Examples of unintentional injuries include road traffic, drowning, burns, falls as well as poisonings (Forjuoh & Gielen, 2008). However, this study aims to focus on fire and burn at home.

According to the World Health Organization (WHO) Global Burden of Disease estimates for 2004, just over 310 000 people died because of fire related burns, of whom 30% were under the age of 20 years. WHO Global Burden of Disease makes it clear that fire and burns are an important contributor to the overall disease toll in children in the low-income and middle-income countries of the African, South-East Asia and the Eastern Mediterranean regions. Another study also claimed that more than half the deaths from fire and burn take place within the Southeast Asia region, including Malaysia (Safe Kids Malaysia, 2017).

Children are one of the highest risk groups of those who experience fire-related deaths and injuries. Fire and burns occur among children due to their natural characteristic which is curiosity. As soon as they can move or walk, they started to explore their surroundings and play with any reachable objects. This is one of the ways where they acquire the skills they need to survive in the world. At the same time, they also come into contact with objects that can cause severe injuries. Playing with fire or touching hot objects can result in burns. This is a debilitating condition accompanied

by intense pain and often by longer-term illness that result in the children to suffer for the rest of their lives. It was identified that for every dead injured child, there were several thousands more of children who survived with varying degrees of disability.

Examples of fire and burn cases around the world by WHO (2008):

1. In India, more than a million people are moderately or severely burnt every year.
2. Nearly 173, 000 Bangladeshi children are moderately or severely burnt every year.
3. In Bangladesh, Colombia, Egypt and Pakistan, 17 per cent of children with burns have a temporary disability and 18 per cent have a permanent disability.
4. Burns are the second most common injury in Nepal, accounting for 5 per cent of disabilities.
5. In 2008, over 410, 000 burn injuries occurred in the United States, with approximately 40, 000 requiring hospitalisations.

In order to prevent injuries among children, full range of approaches can be implemented. These include education program and improvement of regulations and legislations. Henceforth, the prevention of child injury can be a shared responsibility by multiple components such as government and non-government agencies, international organizations, academic institutions and business sectors (Sahril *et al.*, 2014). Interventions to prevent unintentional injuries have traditionally been considered in terms of the three E's; education, enforcement, and engineering. That is, interventions are considered in terms of preventing the occurrence of the injury,

minimizing the severity of injury at the time of the injury, and minimizing the severity of injury following the injury event (Norton et al., 2006). Therefore, it is also important to give education as well as enough information to children regarding fire and burns as they have the right to have live in a safe environment.

1.2 Problem Statement

Home is expected to be a safer place for children. However, it witnessed scenes of numerous home injuries among them (Sikron *et al.*, 2004). A report from the Accidents and Emergency Department of Kuala Lumpur Hospital had estimated that around 10% of injuries happened at home and those who had been injured were mostly among children (Che Ros, 1994). Other than that, it was saddening and surprising fact that around 11.6% of children, after they sustained the injuries, were unable to perform daily activities normally. Another 4.8% of them were admitted to hospitals (Sahril *et al.*, 2014).

In Malaysia, the report released by Safe Kids Universiti Putra Malaysia (UPM) has stated that a child dies from a fire or burn in every two weeks with 6.4% of parents reported that there were fire cases in their house in the past two years. This type of fire incidents involved every level of injuries including minor and major injuries. Other than that, more than half of parents (54%) reported that their child suffered at least one form of burn injury in the past two years (2017). This means that we are losing 24 children every year due to fire and burns.

Several methods have been proposed to combat this problem. These include various of interventions such as regulation and enforcement for the installation of smoke alarm in each house, a universal standard on child-resistant lighter and laws to regulate hot-water temperature that have been proven as effective. Other interventions that are considered as highly promising include the use of safe lamps, the separation of cooking areas from living areas and the development of safer stoves. However, home fires are still account for nearly 85% of all fire related deaths.

WHO (2008) stated that unintentional injuries are also a major cause of disabilities, which can have a long-lasting impact on all facets of children's lives: relationships, learning and playing. However, these accidents give impact not only to the children, but also to the family members.

Therefore, educational and interventional programs need to be implemented accordingly in order to help Malaysians understand the importance of making a safe home environment for children thus preventing fire and burns. This is because, fire-related injuries among children is still a health problem which should not be taken lightly. In order to address this issue, the study on the effectiveness of education program on fire and burns at home among primary school children need to be done. It can be an indicator to test whether or not this way of transferring the information to the community is effective.

1.3 Study Justification

1.3.1 Fire and Burns at home as the focus

Generally, there were researches conducted about child injury. However, there were less researches done on home injury compared to road and occupational injuries in Malaysia (Sahril *et.al*, 2014). While there were less studies related to home injuries, only 11% of parents report that schools frequently teach fire safety education (Safe Kids UPM, 2017). This statistic illustrates the need for education efforts to include messages on proper prevention as fire and burns are preventable. Other than that, Norhisham (2006) and the Institution of Engineers Malaysia (IEM) also stated that in the field of public awareness and education on the risks of fires, compulsory modules and practical demonstrations of firefighting and prevention should be considered at school level.

1.3.2 Intervention learning model to transfer knowledge

Evidence of the effectiveness of interventions to prevent fire and burn related injuries are limited (Norton et al., 2006). A number of intervention studies have been conducted in high-income countries. However, there are less intervention studies, though, of fire and burn in low-income and middle-income countries (WHO, 2008). A study revealed that children lack common fire and burn prevention knowledge as well as knowledge about other common causes of injury in their surroundings. It was also

stated that children were unaware of common causes of burn injuries and what to do in the event of their clothing catching fire (Heard *et al.*, 2013). The advantage of establishing an intervention program is that the resources are conserved (WHO, 2008). Therefore, it was suggested that more intervention learning programs to increase awareness about fire and burns may be required to reduce risk among children (Shi *et al.*, 2016).

1.3.3 Children age 10 and 11 years old as participants

It was stated in a recent study that the overall incidence of injuries was highest in the age group of 7 to 11 years compared to younger children (Mathur *et al.*, 2018). The selection of age was based on the frequency of reported fire and burn injuries across the age of children in the report released by Safe Kids Malaysia UPM (2017). Based on the report, children age 10 and 11 years old showed a higher percentage of getting fire and burn related injuries compared to other ages. Half of them, which was 58.6% of students age 10 and 53.1% of 11 years old children had injured due to fire and burn related cases. Because of these factors, students 10 and 10 years old were selected to participate in this study.

1.3.4 Selangor as sampling location

Selangor is chosen as the sampling location because by referring to the fire, rescue and special service statistics from the Ministry of Urban Wellbeing, Housing and Local Government (2016). In the statistics, Selangor has recorded the highest number of fire cases with the highest number of death and injuries compared to other countries in Malaysia (Figure 1.1). Other than that, 17, 737 number of related calls also coming from Selangor (Ministry of Urban Wellbeing, Housing and Local Government, 2016). The reason why rural and urban schools been studied in the research was to compare the performance of urban and rural students in terms of knowledge on fire and burns at home as there was rural-urban disparity in students' knowledge performance between these two areas (Opoku & Siaw, 2015).

STATISTIK KEBAKARAN, PENYELAMATAN DAN KHIDMAT KHAS, 2016
FIRE, RESCUE AND SPECIAL SERVICE STATISTICS, 2016

NEGERI STATE	JUMLAH PANGGILAN TOTAL CALLS	PANGGILAN CALLS				KEBAKARAN FIRE		PENYELAMATAN RESCUE	
		KEBAKARAN FIRE	PENYELAMATAN RESCUE	KHIDMAT KHAS SPECIAL SERVICE	PANGGILAN PALSU PRANK CALL	MATI DEAD	CEDERA INJURED	MATI DEAD	CEDERA INJURED
Johor	10,225	5,148	4,734	220	123	17	44	211	694
Kedah	7,959	4,371	3,115	409	64	6	31	99	423
Kelantan	3,205	2,209	824	168	4	4	26	101	363
Melaka	4,321	2,466	1,674	171	10	3	30	61	439
Negeri Sembilan	3,501	2,119	1,340	13	29	6	23	84	420
Pahang	4,879	2,938	1,906	23	12	4	36	136	499
Perak	10,959	6,576	4,297	81	5	8	51	133	575
Perlis	1,459	1,087	365	7	-	1	7	5	78
Pulau Pinang	6,879	3,495	3,190	68	126	4	31	89	351
Sabah	7,139	4,620	2,466	44	9	19	36	98	360
Sarawak	5,293	2,012	3,144	122	15	10	32	151	367
Selangor	17,737	8,161	9,514	44	18	20	79	249	910
Terengganu	3,833	2,391	1,247	190	5	2	14	83	357
W.P. Kuala Lumpur	3,527	1,698	1,800	3	26	1	31	64	156
W.P. Labuan	850	488	353	-	9	2	2	2	16
W.P. Putrajaya	541	96	433	12	-	-	4	4	33
JUMLAH TOTAL	92,307	49,875	40,402	1,575	455	107	477	1,570	6,041

Figure 1.1. Fire, rescue and special service statistics from the Ministry of Urban Wellbeing, Housing and Local Government (2016).

1.3.5 The advantage of early age education program

As discussed previously, interventions to prevent injuries may have significant improvement on the knowledge score of the children. This improvement may help to determine whether the planned program objectives could be achieved or not. When it was viewed from the perspective of cognitive theory, the way children think had reached the stage of formal operational thinking. This stage of cognitive development begun from 10 to 12 years and continued until the children reached the state of adulthood. At this time, the children were able to predict about something that would or might be happening, they could think about something abstract. In addition, at this stage, children had the ability to think systematically, they could also think of all possibilities to solve problems (Fowler, 2009).

It was also stated in the theory that children at the age of 10 to 12 years old, there was an occurrence of knowledge assimilation. Assimilation of knowledge occurs when a learner encounters a new idea and must “fit” that idea into what they already know (Piaget, 1970). Think of this as filling existing containers. For example, a child saw a small fire case and was taught that it was dangerous. Therefore, the child would always stay awake and be careful with any fire related event.

1.4 Conceptual Framework

The function of this conceptual framework is to assist and guide the researcher in conducting this study and achieving the objective of this study which is to study the effectiveness of fire and burns at home education among primary school children in Hulu Langat, Selangor.

From the conceptual framework, there are many types of child injuries. These include road traffic, drowning, fire and burns, falls and poisonings. This study focused on fire and burns at home setting. Primary school children were approached with intervention educational model. These school children were selected from a rural and an urban school in Hulu Langat, Selangor. The children from both schools were then divided into control and experimental groups as in Figure 1.2.



Figure 1.2. Division of control and experimental groups in each school.

In this study, it was presumed that the knowledge score of the children would increase after the introduction of educational model. Therefore, a pre and post-test had been conducted to be able to compare the knowledge score on fire and burns at home before-after the introduction of intervention learning model.

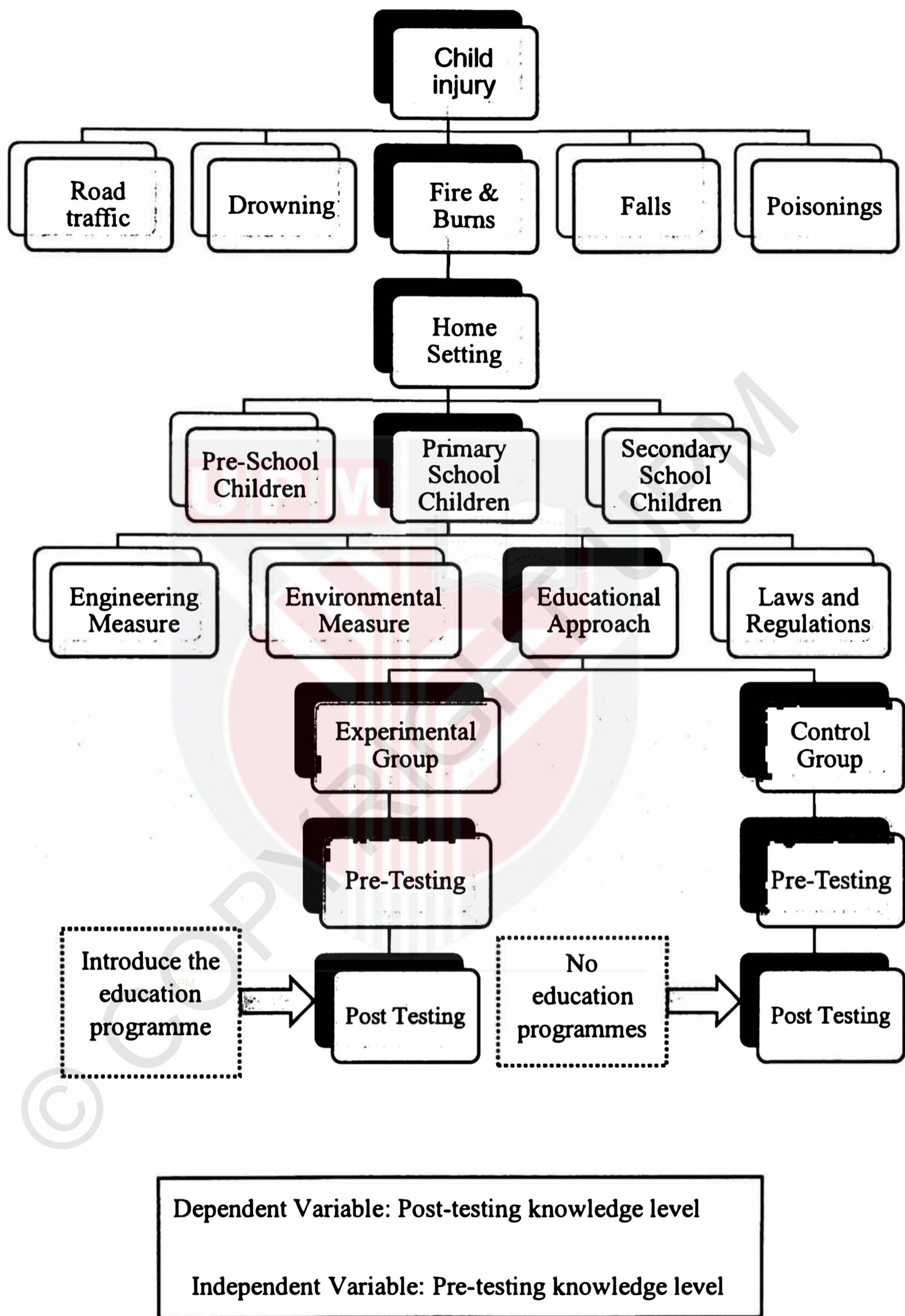


Figure 1.3. Conceptual framework of the research.

1.5 Definition

1.5.1 Conceptual Definition

- **Education program**

Any program principally engaged in the provision of education, including, but not limited to, early childhood education, elementary and secondary education, postsecondary education, special education, job training, career and technical education, and adult education, and any program that is administered by an educational agency or institution (United States Department of Education, 2017).

- **Fire**

Oxford Dictionary (2017) defines fire as a process in which substances combine chemically with oxygen from the air and typically give out bright light, heat, and smoke; combustion or burning.

- **Burns**

Oxford Dictionary (2017) defines burns is described as an injury caused by exposure to heat or flame.

- **Primary school children**

Children between the ages of seven and twelve that registered and enrolled at primary schools in Malaysia.

- **Rural and urban areas**

Rural area is defined by exclusion as an absence of urbanism or may be thought to have distinct exposures of their own, such as those derived from agriculture and other rural industries, or lack access to healthcare. Urban area is defined as a city that has been developed by urbanization process causing an increase in population, size and density over time (Hall *et. al*, 2006).

- **Socio-demographic**

Socio-demographic refers to a group defined by its sociological and demographic characteristics such as age, education level, gender, race, etc.

1.5.2 Operational Definition

- **Education program**

Education program introduced in this study was related to the knowledge on fire and burns at home among primary school children.

- **Primary school children**

Primary school children in this research was the 10 and 11 years old students from the two selected schools.

- **Rural and urban areas**

In this research, a school in Cheras was chosen as the urban area while another school in Hulu Langat was chosen as rural area.

1.6 Research Objectives

1.6.1 General Objective

To evaluate the effectiveness of education program on fire and burns at home among primary school children in Hulu Langat, Selangor.

1.6.2 Specific Objectives

- a) To develop fire and burns at home education model for primary school children in Hulu Langat, Selangor.
- b) To determine the social demographic characteristics distribution among respondents.

- c) To compare the knowledge's score on fire and burns at home between students in rural and urban schools before the education program.
- d) To compare the knowledge's score on fire and burns at home between control and experimental groups of the school children before the education program.
- e) To compare the knowledge's score on fire and burns at home among students in experimental group before and after the education program.

1.7 Hypothesis

- a) The knowledge's score on fire and burns at home before the education program is lower among students from rural school compared to urban school.
- b) The knowledge's score on fire and burns at home after the education program is lower in control group compared to experimental group.
- c) There is a significant difference in the knowledge's score on fire and burns at home among students in experimental group before and after the education program.

CHAPTER 2

LITERATURE REVIEW

This chapter summarizes the finding from post studies about fire and burns that are related with this study. This chapter explains the definition of fire and burns, overview of home injuries, fire and burns among school children and the impacts of fire and burn cases to children.

2.1 Definition of Fire and Burns

Fire is a small word with serious meaning (Yeturu, et al., 2016). Many of people do not realize how serious the damage and destruction a fire can cause. International Civil Defence Organisation (ICDO) (2018) defines fire as the accidents which occur most frequently, whose causes are the most diverse and which require intervention methods and techniques adapted to the conditions and needs of each incident. While the Universities Safety and Health Association (UHSA) (2011) stated that fire is defined as an undesirable event which emits heat, smoke and/or flame, which has the potential to cause damage, may require intervention either mechanical or human or has a cost implication.

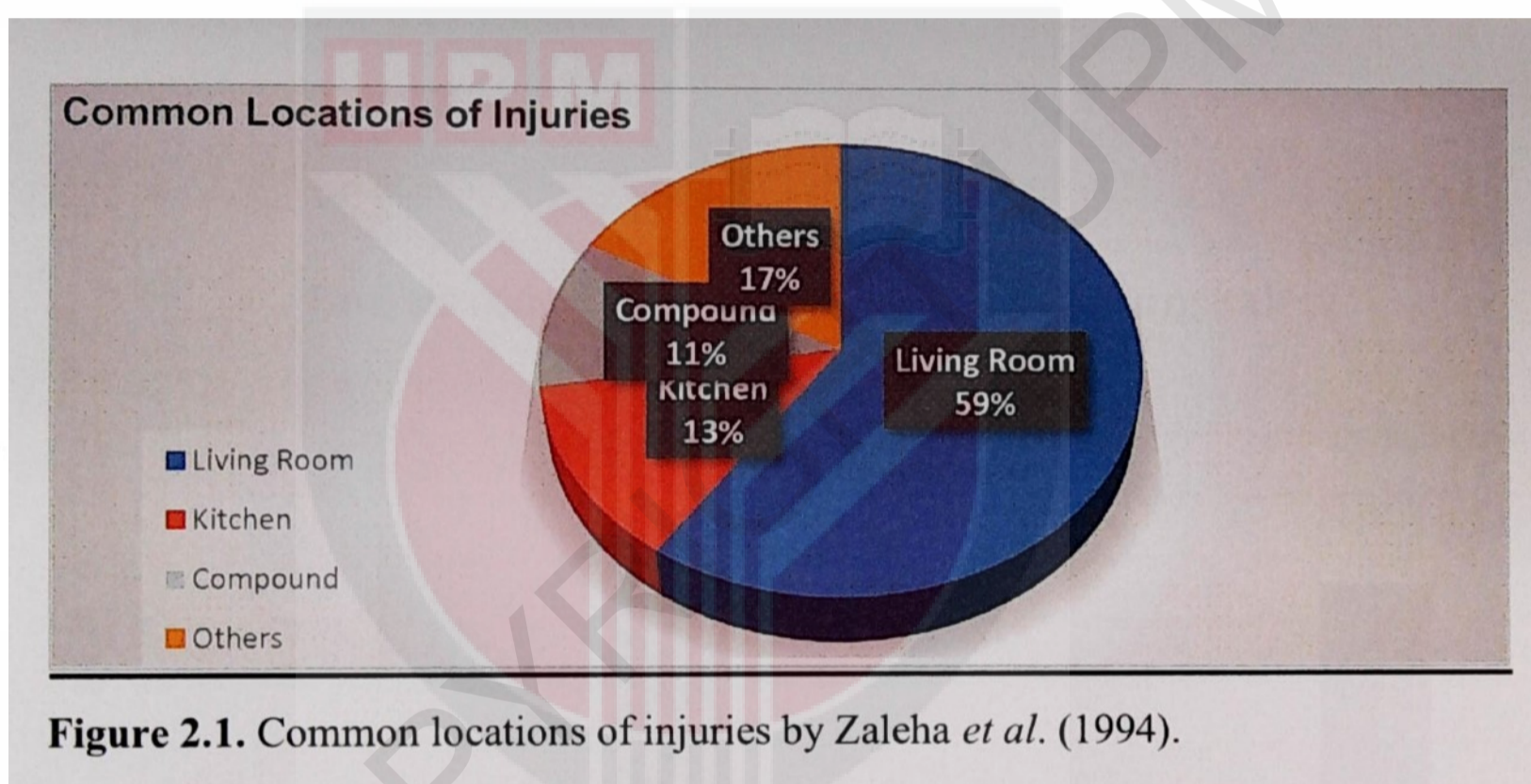
WHO describes burn as an injury to the skin or other organic tissue caused by thermal (heat) trauma. It occurs when some or all of the cells in the skin or other tissues are destroyed by hot liquids (scalds), hot solids (contact burns), or flames (flame burns). Injuries to the skin or other organic tissues due to radiation, radioactivity, electricity, friction or contact with chemicals are also considered as burns (2008). Whereas Yasti *et al.*, (2008) mentioned that burns involve injuries to tissues as a result of heat, chemicals, electrical current or radiation. The source of injury, location of the burn, burn depth and extent of injury assist to determine the severity of the injury.

2.2 Overview of Home Injuries

Protection of occupants from fire-related injury, including death, is part of the third feature of healthy housing. Using the criteria proposed by Mood (1993) the issue of fire safety can be considered as one component of improving the health of households. Mood (1993) identifies four features of a healthy residential environment:

- Protection from physiological extremes (warm and dry)
- Protection from infectious disease (adequate space, clean food and water provision)
- Protection from physical injury (well-lit, fire-resistant materials, guards on stairs, etc)
- Promoting mental and emotional well-being (adequate space for all occupants, adequate resources to meet daily needs)

Home is the place where many people spend most of their times. Although the home is perceived to be a safer place, it is found as one of the common location of injury (Sikron, *et al.*, 2004). Compound, living room, bedroom, kitchen and stairs were the five most common locations of injuries (Sahril *et al.*, 2014). This fact is supported by a study done by Zaleha *et al.* (1994) whereby the most frequent location of injury among children were as follows:



2.3 Fire and burns among school children

Study by Safe Kids Foundation India (2015) recorded hot utensils as the main cause of burn and scald injuries that children sustained in their home. Other reasons are due to hot beverages, firecrackers, hot geyser water, burns while cooking and due to touching hot iron. It almost similar to the causes in Malaysia. The top five causes of burn or scald injuries among children in Malaysia were touching hot utensils, getting

into contact with hot iron, hot water heater, hot motorcycle exhaust pipe as well as firecrackers (Safe Kids Malaysia, 2017).

The mentioned studies revealed that only 20% of schools in Pune, India provide fire education to their students. Meanwhile in Malaysia, a lower percentage was recorded which was 11% of parents reported that schools frequently teach fire safety education to their children.

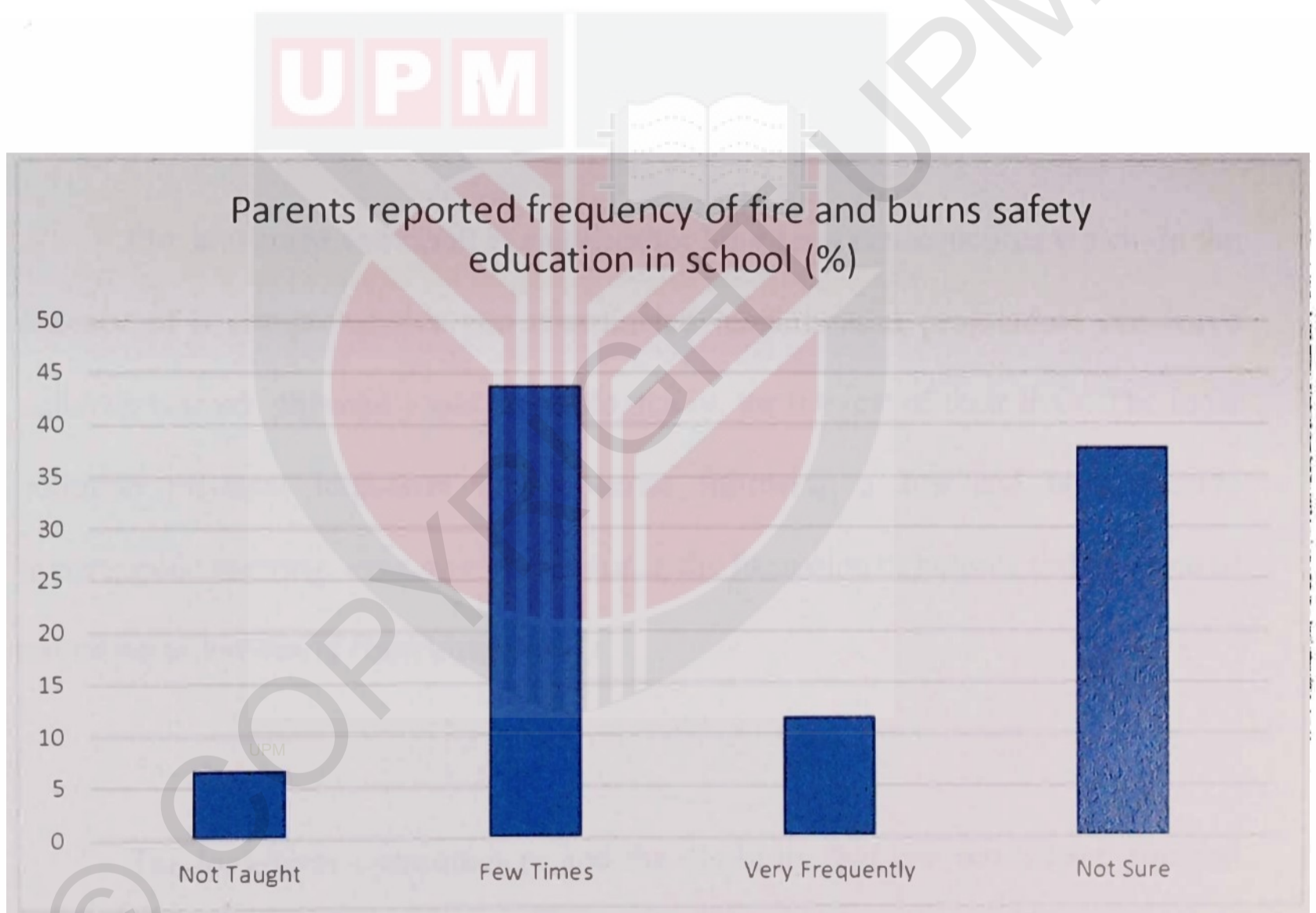


Figure 2.2. Parents reported frequency of fire and burns safety education in school (N=640)

2.4 Impacts of fire and burn cases to children

Playing with fire or touching hot objects can result in fire and burns. WHO stated that this is a debilitating condition accompanied by intense pain that creates suffering not only for the child but for the wider family and community (2008). According to WHO Global Burden of Disease estimates for 2004, fire-related burns are the 11th leading cause of death for children. Overall, children are at high risk for death from burns, with a global rate of 3.9 deaths per 100, 000 population.

Fire and burns can result in significant long-term consequences which- in the absence of a comprehensive and coordinated rehabilitation programme can leave children scarred, physically and psychologically, for the rest of their lives. The most common physical long-term consequences following a fire and burn include hypertrophic scarring, extensive contractures, the formation of keloids and the need to amputate an extremity (Esselman, 2007).

The long-term consequences and the disability that can result from fire and burns place a considerable strain on individuals and their families, as well as on health-care facilities. Other than that, fire-related burns are among the leading causes of disability-adjusted life years (DALYs) lost (WHO, 2008). Young burn victims may experience persistent post-traumatic symptoms (Stoddard *et al.*, 1989). It is stated that burns are the fourth most common type of trauma worldwide (Institute for Health Metrics and Evaluation, 2010).

CHAPTER 3

METHODOLOGY

3.1 Study Location

This quasi-experimental had been conducted at Hulu Langat, Selangor (Figure 3.1). Hulu Langat District is divided into 7 sub-districts, which are Hulu Langat, Ampang, Cheras, Hulu Semenyih, Kajang, Semenyih and Beranang.

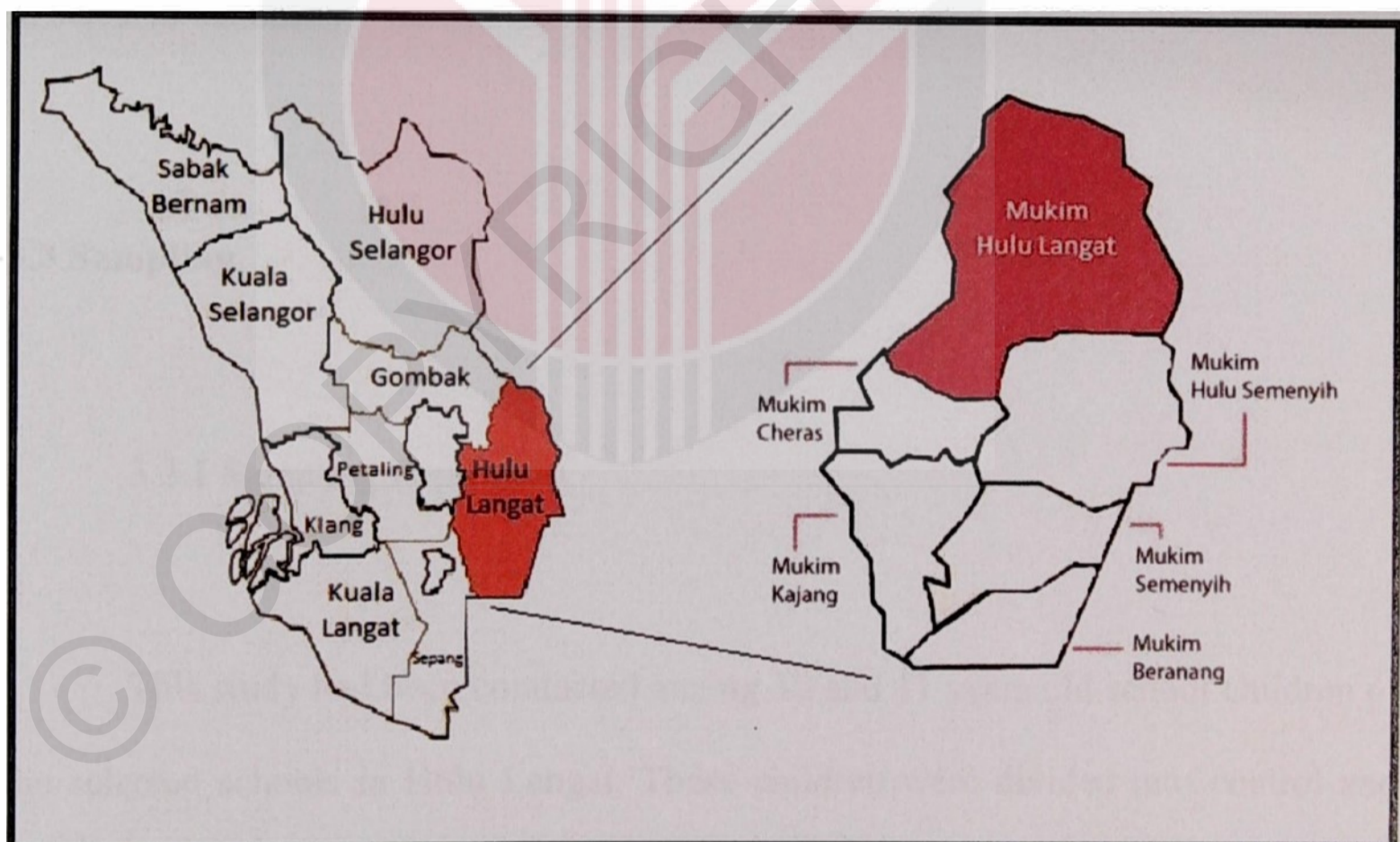


Figure 3.1. Location of Research.

In Selangor, there were about 659 number of government primary schools. In Hulu Langat area, two different schools from to different areas (rural and urban) were selected in this study. Both schools were under Hulu Langat District Education Office (PPD). For this research purposes, one of the primary schools from Cheras represented urban area while primary school from Hulu Langat represented as rural area.

3.2 Study Design

This pre- and post-test Quasi-Experimental study was carried out to determine the effectiveness of fire and burns at home education among primary school children in selected schools.

3.3 Sampling

3.3.1 Sampling Population

This study had been conducted among 10 and 11 years old school children of the selected schools in Hulu Langat. These children were divided into control and experimental groups.

3.3.2 Sampling Frame

The name list of schools in Hulu Langat was obtained from the official website of Selangor Education Department in which was updated to 2015. The name list of students was obtained from the school principals of these two schools in Hulu Langat, Selangor.

Inclusion criteria: Male and female students at the age of 10 and 11 years old and have signed respondent's information sheet and informed consent form Form 2.4 and whose parents had signed respondent's information sheet and guardian's/parent's consent Form 2.5 (See Appendix IV and V).

Exclusion criteria: Students who were unable to read.

3.3.3 Sampling Unit

The samples were students age 10 and 11 years old of the schools located in Hulu Langat, Selangor who are literate.

3.3.4 Sampling Method

Quasi-experiments were subject to concerns regarding internal validity, because the experimental and control groups might not be comparable at baseline. Therefore, random assignment had been used in which study participants had the same chance of being assigned to the experimental group or the control group. It had been mentioned that randomized controlled trials are the gold standard for assessing the effectiveness of injury intervention (Norton et al., 2006). As a result, differences between groups on both observed and unobserved characteristics would be due to chance, rather than to a systematic factor related to treatment.

3.3.5 Sample Size

$$N = \frac{2\sigma^2[Z_{1-\alpha/2} + Z_{1-\beta}]^2}{\mu_1 - \mu_2}$$

Where,

σ = estimated standard deviation (assumed to be equal for each group)

μ_1 = estimated mean (larger)

μ_2 = estimated mean (smaller)

Therefore;

$$N = \frac{2\sigma^2[1.96 + 0.842]^2}{\mu_1 - \mu_2}$$

$$N = \frac{2(4.172)^2[1.96+0.842]}{13.7-8.3}$$

$$N = 18.06$$

Sources: Lameshow et al., 1990.

Therefore, it had been estimated that a minimum of $(19 \times 2) = 38$ children shall be recruited to each group (10 and 11 years old children). Since there were experimental and control groups to be compared, $(38 \times 2) = 76$ children needed to be recruited from one school. Considering that sampling would be done in two different schools in Selangor, a minimum number of total $(76 \times 2) = 152$ school children were recruited from these two schools.

3.4 Study Instrumentation

3.4.1 Questionnaire

The respondents were assessed by using self-administered questionnaire which contains five sections, namely section A to Section E. Each respondent was required to answer twice the questionnaire before and after the knowledge transfer session with the aid of education programme. Section A of this questionnaire was to describe the social demographic status of the selected respondents. It consisted of questions related to the age, gender and races of the respondents. Section B asked about event of reporting an emergency. Sections C contained questions related to identify hot objects.

Section D was about the steps of 'Stop, Drop, and Roll' while Section E was steps that should be taken by the children, to minimize or preventing fire and burns incidents. The questionnaire was presented in the Malay language (Refer Appendix: Questionnaire).

The participation of the respondents in this study was voluntary. As this study involved a vulnerable population, therefore, it was necessary to obtain their agreement and the permission from their parents. This gave a child the opportunity to decide if they want to take part, and to decline if they were not interested. In these cases, both respondent's information sheet and informed consent form (Appendix IV) and respondent's information sheet and guardian's/parent's consent (Appendix V) were provided and distributed for this study purposes.

In order to ensure the quality assurance of the questionnaire, validity test was conducted before the commencement of this study. Refer Section 3.7 for details of quality control for this study.

3.4.2 Educational model

The educational model of the fire and burns at home was developed based on the teaching model as recommended by “Learn not to be burn, level 1” introduced by National Fire Protection Association (NFPA) (2012). The researcher shared the information regarding fire and burns by using educational tools, which was a 3-Dimensional learning model. The evaluation towards the knowledge on fire and burns at home among the children (using post-questionnaire) then being carried out.

First of all, researcher shared the knowledge on fire and burns at home by using the intervention learning model. After one week from the educational session, students had been evaluated on their knowledge on fire and burns at home. This was to evaluate the effectiveness of education program on fire and burns at home among primary school children as mentioned in the objectives. The intervention learning model consisted of four sections as described in Table 3.1.

Table 3.1. Sections of educational tool and the learning contents.

Learning Model	Learning Content
Section 1 Report on emergency	This section aims to teach children what an emergency means and to distinguish between situations that are true emergencies (such as fire and burns) and situations that do not need the help of fire department.
Section 2 Stay away from hot objects	The purpose of this section is to identify things that can be hot or could get hot and to stay away from all hot objects.
Section C Stop, drop and roll	The intention of this section is to teach students to stay away from fire. Students will be taught on stop, drop and roll steps and when to perform this behaviour as stop, drop and roll under the wrong circumstances could be very dangerous.
Section D Get outside, stay outside	This section is meant to teach children to escape from fire by introducing a home fire escape plan and explaining about the meeting place in the case of fire.

3.5 Data Collection

After all application processes being approved, selection of students was conducted randomly from the name list of students. This random selection of participants and random assignment of the study participants into groups were to ensure that results are generalizable. Experiments that pre-test the subjects might influence the performance of subjects due to the fact that participants had already seen or completed the test before. The best way to address this threat was to add another group into the design, which was control group. The function of control group was to compare the results obtained in this study. This is because, simple pre- and post-test design with no control group typically creates the larger validity concerns.

The selected respondents were gathered in a room provided by the school teachers. Before the questionnaire being distributed to the children, a briefing on the purpose of the study was conducted by the researcher. The education program was applied only to the experimental group. Education program includes transferring information to the students about fire and burns at home by using the intervention learning model. After one-week from the educational session, post-testing had been done to both groups. A token of appreciation was given to the respondents after the completion of the questionnaire.

3.6 Study Flow Chart

This study used pre- and post-test Quasi Experimental design to evaluate the effectiveness of fire and burns at home education among primary school children in Hulu Langat, Selangor. Students were divided into two groups, in which one group participated in the education program on fire and burns at home (experimental group), and the other group received no education program (control group) over the same period of time.

Figure 3.2. shows the whole process of this study in a schematic diagram. As mention, Step 1 is knowledge acquirement. During this process, researcher searched and collected as many information, data and knowledge in order to help the development of educational tool and questionnaires. After the collection of information, researcher proceeded to Step 2 which was the development of educational tool and questionnaire based on the information gathered.

This process continued to Step 3 where pre-testing of both educational tool and questionnaire were carried out. The purposes of this step were as follows: 1) to test and improve the educational tool based on the response given by the school children, 2) to ensure all questions in the questionnaire provided were understandable by the school children and suitable with the educational tool being used. Next, Step 4 included the improvements of the educational tool and the questionnaire based on the comments given during the pre-testing.

Moving to the 5th step which is pre-testing to both experimental and control groups. It was conducted by distributing questionnaire to the selected students. In step 6, educational tool had been given to experimental group while control group received no education related to fire and burns at home over the same period of time. Post-testing (Step 7) will be conducted to both groups after one week to identify the effectiveness of educational tool in transferring information. The last step is to analyse data based on the objectives in 1.6. The whole process can be described as below:

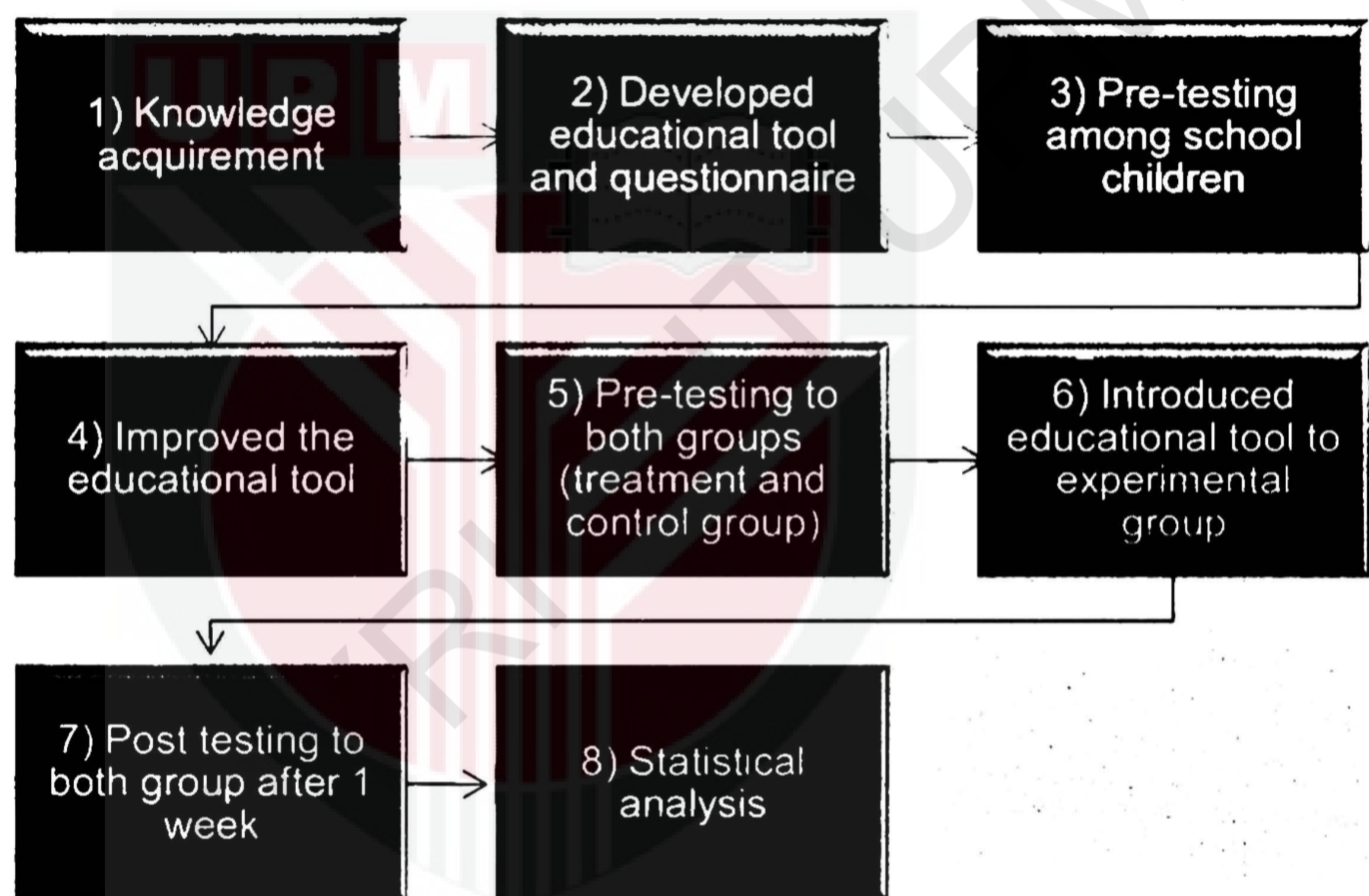


Figure 3.2. The flow chart of procedures.

3.7 Quality Control

3.7.1 Validity Test

To test the validity of the questionnaire, the questionnaire was pre-tested to examine the validity of the information. Pre-testing of the developed questionnaire was done by distributing sample of questionnaire in order to ensure that all questions asked in the questionnaire were suitable and understandable by the school children. The respondents who participated in the validity test were not included in the full scale of this study.

3.8 Data Analysis

All of the statistical analysis will be done by using Statistical Package of Social Sciences (SPSS) version 21.0.

Objectives	Analysis
To develop fire and burns at home education model for primary school children in Hulu Langat, Selangor.	
To determine the social demographic characteristics distribution among respondents.	Descriptive analysis
To compare the knowledge's score on fire and burns at home between students in rural and urban schools.	
To compare the knowledge's score on fire and burns at home between control and experimental groups of the school children before the education program.	Parametric: Independent Sample T-test
To compare the knowledge's score on fire and burns at home among students in experimental group before and after the education program.	Parametric: Paired sample T-test

3.9 Ethical Consideration

Present study was approved by the Ethics Committee for Research involving Human Subjects of Universiti Putra Malaysia (Reff: UPM/TNCPI/RMC/1.4.18.2). Participants were briefly explained on the purpose of present study and all procedures involved. Parental permission had been obtained for the testing and the methodology was agreed by Educational Planning and Research Division, Ministry of Education (Reff: KPM.600-3/2/3 JLD58) to undergo testing protocol as well as permission from Selangor Department of Education (Reff: JPNS.PPN 600-1/49 JLD.77).

All subjects need to submit parental consent letter that will be sent earlier before testing day in order to inform parents regarding data collection involving their children as well as to explain to parents or guardians regarding the research benefit and data collection procedure.

CHAPTER 4

RESULTS

4.1 General Socio-Demographic Information of Respondents

This part reveals general information of respondents including age, schools (rural or urban), gender, and previous experience with fire and burns. The total study participants were 152 which then be divided in two categories of school whereas there were 76 (50%) of students from rural school and 76 (50%) students from urban school.

Regarding age, all students of each schools were in the age of 10 and 11 years old. There were 76 (50.0%) number of students for each age.

For gender, the study population in rural school comprised of 34 (44.7%) male and 42 (55.3%) of female students. while there were 33 (43.4%) of male and 43 (56.6%) of female students in urban school.

Moving to races, Malay was dominant for both schools with the total number of 150 (98.7%) respondents, 1 (0.7%) of Indian respondents and 1 (0.7%) of other races. There was 76 (100%) of Malay respondents in rural school with no any other races involved. Meanwhile in urban school, 74 (97.4%) of Malay students, 1 (1.3%) of Indian, and 1 (1.3%) of other race participated in this study.

Other than that, almost half of the students in rural school, which is 33 (43.4%) admitted that there have experience fire and burn related accidents while the other 43 (56.6%) claimed that they never experienced such incidents. A higher percentage of fire and burn related case was recorded in urban school, where there were 36 (47.4%) stated that they had involved in fire and burn accidents. The rest of students which is 40 (52.6%) were never involved in fire and burn related incidents.

Lastly, in rural school, there was only 53 (3.9%) respondents claimed that they experienced burning house before while majority of 73 (96.1%) students were never being in the situation. For urban school the students who had experienced burning house were only 2 (2.6%) while there were 74 (97.4%) of students reported never had burning house cases. This socio-demographic information was summarised in Table 4.1.

Table 4.1. Socio-demographic information of respondents. (N=152)

Socio-Demographic Characteristics	Rural (n=76)		Urban (n=76)	
	Number	(%)	Number	(%)
Age				
• 10	76	(50.0)	76	(50.0)
• 11	76	(50.0)	76	(50.0)
Groups				
• Control	76	(50.0)	76	(50.0)
• Experimental	76	(50.0)	76	(50.0)
Gender				
• Male	34	(44.7)	33	(43.4)
• Female	42	(53.3)	43	(56.6)
Races				
• Malay	76	(100.0)	74	(97.4)
• Indian	-		1	(1.3)
• Others	-		1	(1.3)
Experienced accident related to hot objects				
• No	43	(56.6)	40	(52.6)
• Yes	33	(43.4)	36	(47.4)
Experienced fire related cases				
• No	73	(96.1)	74	(97.4)
• Yes	3	(3.9)	2	(2.6)

Based on the socio-demographic information, there were 69 (45.4%) out of 152 students claimed that they had experienced fire and burn related injuries before. The result also highlighted the number of students that had an experience on burning home, which is 5 (3.3%) from the total 152 respondents. Therefore, through the result stated, the frequency of reported fire and burn injuries across socio-demographic characteristics such as gender and type of school can be examined.

As illustrated in Figure 4.1, from 69 children that reported fire and burn injuries, 39 (56.5%) of them were males and 30 (43.5%) were females. Next, by referring to Figure 4.2, 33 (47.8%) of students from rural school was reported to experience fire and burn injuries and the other 36 (52.2%) were from urban school. These results were simplified as in Figure 4.1 and 4.2.

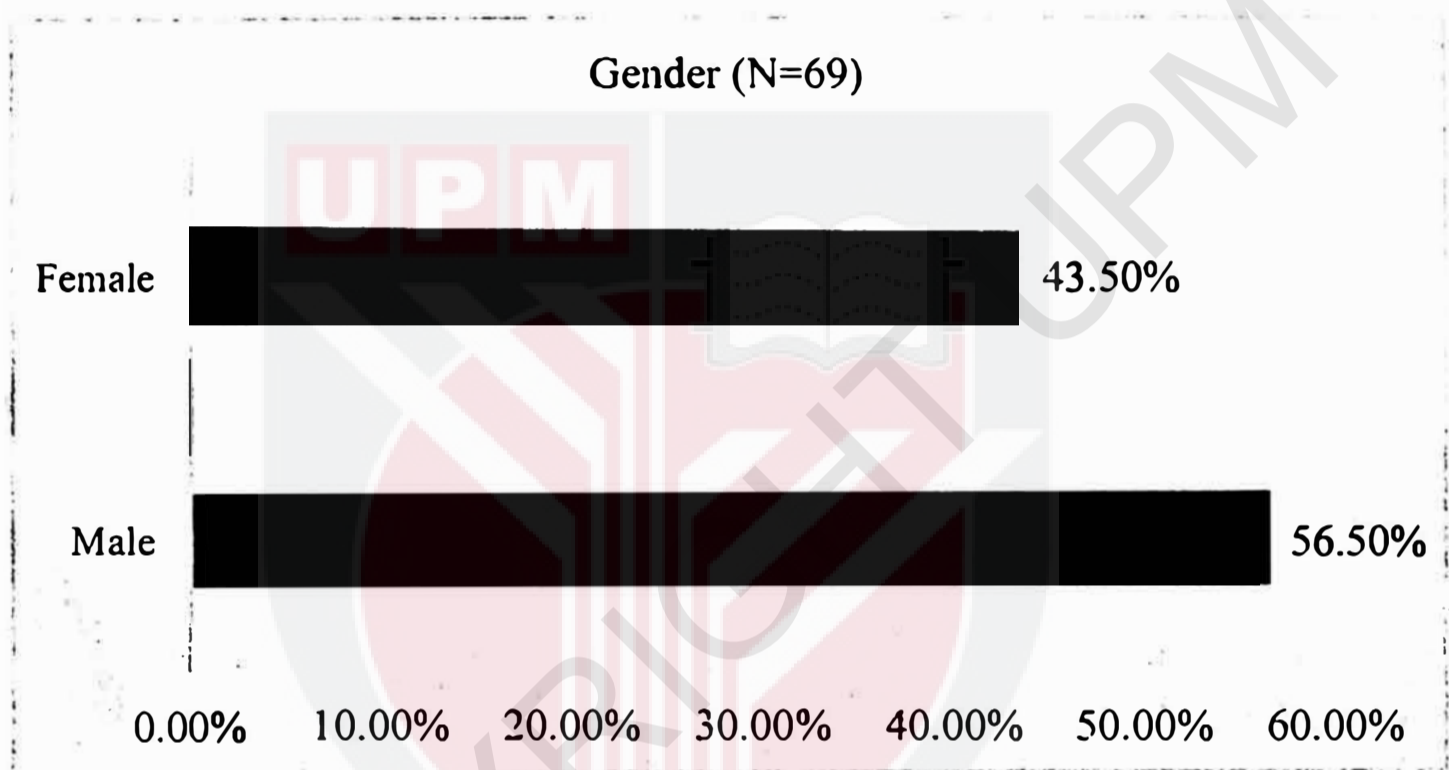


Figure 4.1. Percentage of fire and burn injuries across gender (N=69)

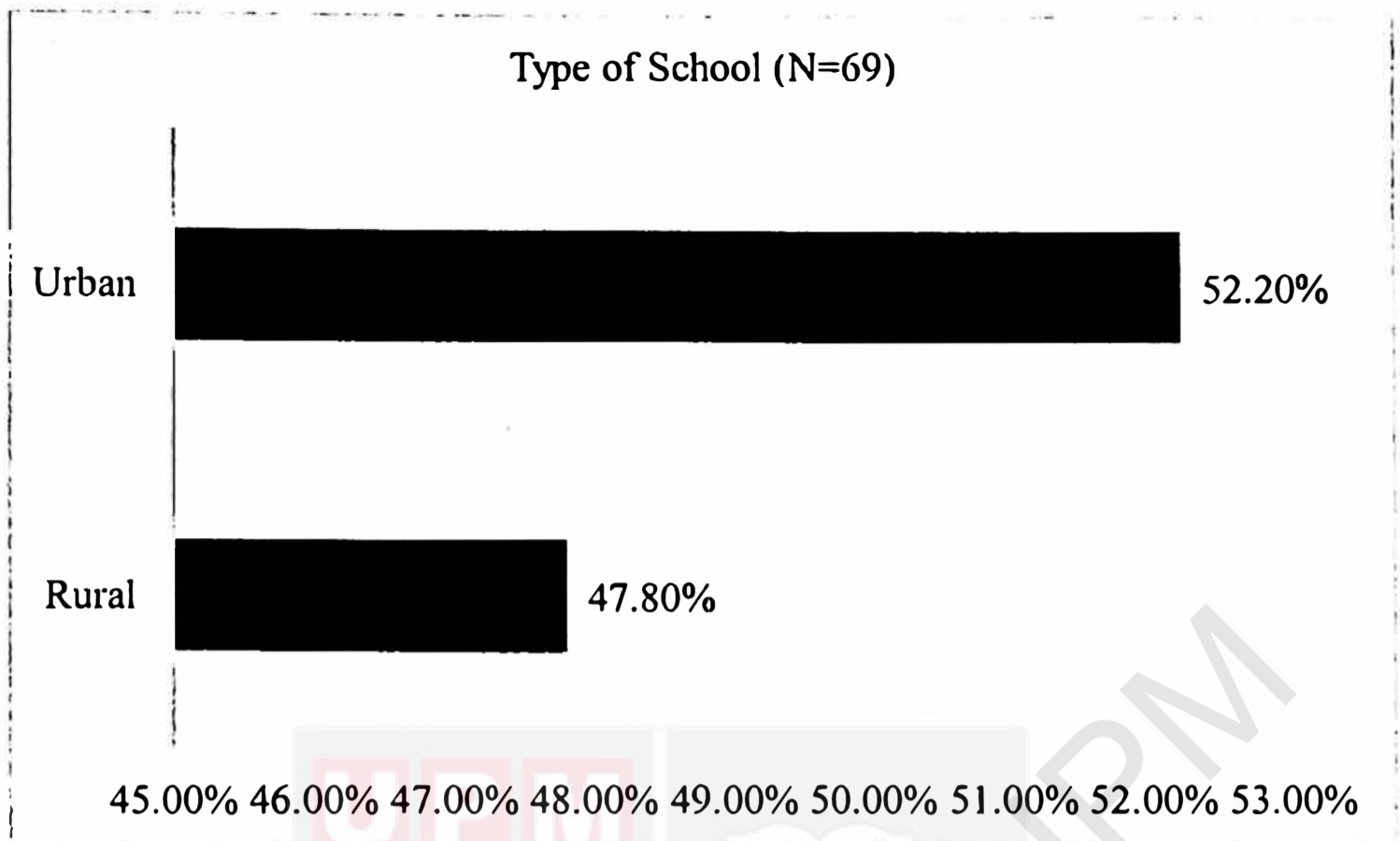


Figure 4.2. Percentage of fire and burn injuries across type of school (N=69)

4.2 Background Knowledge of Fire and Burn Before the Introduction of Learning Model Among Students in Rural and Urban Schools

This section shows the background knowledge of fire and burn at home before the education programme. A pre-test has been conducted in selected schools. Questions were asked to explore the respondent's knowledge on fire and burns at home. As the data was normally distributed, Independent T-test analysis had been carried out to be able to compare the mean knowledge score of fire and burns at home between students in rural and urban schools. There was a significant difference of the background knowledge of fire and burn at home between rural and urban schools. The p-value is <0.001 in which urban area recorded a higher mean score, 23.86 (1.87) compared to students from rural school, 20.87 (1.96). The result was tabulated in Table 4.2.

Table 4.2. Comparison of Pre-Test score on fire and burns at home between different schools

Variables	Mean (SD)		Mean difference (95%)	p-value
	Rural	Urban		
Pre-Test Score	20.87 (1.96)	23.86 (1.87)	-2.99 (-3.60, -2.37)	$<0.001^*$

* significant at $p < 0.05$

4.3 Background Knowledge of Fire and Burn Before the Introduction of Learning Model Among Students in Control and Experimental Groups

To compare the background knowledge between control and experimental groups, Independent T-Test had been used. There is no significant different on the background knowledge of fire and burns at home among control and experimental groups. It means that the mean score was about equal in both groups. The p-value of the test was 0.97, with the mean (SD) of 22.37 (2.19) for control group, and the mean (SD) for experimental group was 22.36 (2.66). The overall result of background knowledge of fire and burn before the introduction of learning model among control and experimental groups was tabulated in Table 4.3.

Table 4.3. Comparison of Pre-Test knowledge score on fire and burns at home between control and experimental groups.

Variables	Mean (SD)		Mean difference (95%)	p-value
	Control	Experimental		
Pre-Test Score	22.37 (2.19)	22.36 (2.66)	0.01 (-0.77, 0.79)	0.97*

* significant at $p < 0.05$

4.4 The Differences of Knowledge on Fire and Burn at Home Before and After the Introduction of Learning Model Among Students in Experimental Groups

Table 4.4 shows the mean of the correct answers in the pre- and post-stage in every section in the questionnaire. Each section recorded a significant result between pre- and post-tests (p-value <0.001). The overall mean score in experimental group can be seen in Table 4.5. There is a significant different of mean score between pre- and post-test. The mean score of post-test was significantly higher than the pre-test.

Table 4.4. Comparison of mean score by sections between pre-test and post-test.

Sections	Mean (SD)		Mean difference (95%)	p-value
	Pre-Test	Post-Test		
Report on emergency	7.01 (1.13)	7.84 (0.40)	-0.83 (-1.06, -0.59)	<0.001*
Stay away from hot objects	6.54 (1.16)	7.99 (1.05)	-1.45 (-1.74, -1.15)	<0.001*
Stop, drop and roll	2.58 (1.53)	4.26 (0.98)	-1.68 (-2.04, -1.33)	<0.001*
Get outside, stay outside	6.22 (1.10)	7.28 (0.76)	-1.05 (-1.31, -0.79)	<0.001*

*significant at p<0.05

Table 4.5. Comparison of mean score in experimental group between pre-test and post-test

Variables	Mean (SD)		Mean difference (95%)	p-value
	Pre-Test	Post-Test		
Experimental Group	22.36 (2.66)	27.37 (1.57)	-5.01 (-5.54, -4.48)	<0.001

* significant at p<0.05

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 General Socio-Demographic Information of Respondents

Fire and burn injuries have been described as a common traumatic injury which causes significant mortality and morbidity (Bayuo & Botchway, 2017). The occurrence of fire and burn injuries are not specific to any population or age group as they can affect any person. Despite this, children population has been indicated to be a high-risk group of being involved in fire and burns.

In this study, female participants, (56.5%) in rural and (55.3%) in urban areas showed predominance in comparison to male participants. Hemanda *et al.* and Kumar *et al.* also found similar data in their study. However, studies done by other authors have found predominance of male participants in comparison to female participants.

Most of the students participated in this study were Malay. In rural area, all of the school children (100%) and majority of children in urban area (97.4%) were Malays. This was because both schools selected were Malay-stream school systems. Most of

the students in Malay-stream schools consist of Malay ethnic, with minorities of other races.

Based on the reported fire and burn injuries, males had a higher tendency (56.5%) to get involved with the injuries compared to female (43.5%). This result is supported with previous study, in which they stated that male children are at increased risk, often due to fire play and risk-taking behaviours (Blom *et al.*, 2016). Other than that, the main cause of predominance of male child may be due to more mobility of male sex (Shrestha, 2006). It is encouraging to compare this statement with that found by Sahril (2014) who stated that the difference between genders may be related to traditional males and females roles. Differences in socialisation operating at early age may also result in differences in risk-taking behaviours between males and females.

However, this finding is contrary to a previous study which have claimed that among fire and burn injuries, however, girls had higher incidence compared to boys (Mathur *et al.*, 2018). A study by John Hopkins Medicine Health Library (2018) demonstrated that female children are at increased risk of fire and burn injuries, with most cases occurring in the kitchen or bathroom. The difference between this study and the one conducted in India may be a result of the cultural diversity between the two countries (Amen & Ahmed, 2016). The pattern of burn injuries can be explained by deep-rooted gender-based roles for girls in India, which exposed to unsafe kitchen or cooking areas. Girls also have increased risk of fire-related injuries in the cooking areas from cooking utensils, which are not designed for handling by children with limited capacity (Mathur *et al.*, 2018).

Among students who had experienced fire and burns incidents at home (N=69), 47.8% of them were students from rural school. This is no-surprise that students from urban area reported to have a higher percentage (52.2%) of fire and burn related injuries at home. Consistent with the literature, the research found that participants from urban area had the highest incidence rate of fire and burn injuries compared to that in rural area. (Blom *et al.*, 2016). The high incidence in children in urban areas could reflect the vulnerability among children living in cramped housing conditions (Sahril, 2014).

From Table 4.1, it can be concluded that burn injuries (45.4%) affected the children more than fire injuries (3.3%) at home setting. This result support evidence from previous observations from Shrestha (2006), who revealed that the occurrence of burn injuries among children was higher than the percentage of flame injuries.

5.2 Background Knowledge of Fire and Burn Before the Introduction of Learning Model

The knowledge of fire and burns among students in urban school was significantly higher compared to those in rural area. This may be due to rural-urban disparity in educational resources (Opoku & Siaw, 2015). The location of that particular urban school is nearer to Fire and Rescue Department, in which they can obtain information easier compared to those in rural area.

The difference of knowledge between those who were in control group and those who were in experimental group was statistically not significant ($p=0.97$). This was because random assignment was used in which study participants have the same chance of being assigned to the experimental group or the control group (White & Sabarwal, 2014). The mean pre-test score between these two groups were about to equal as schools speaks for lack of education of burn knowledge in the formal educational programs. The students were left on their own to acquire such knowledge through experiences; therefore, the distribution tends to be random across questions and not related to each other (Heard, 2018).

5.3 The Differences of Knowledge on Fire and Burns at Home After the Introduction of Learning Model

In order to determine whether the proposed educational intervention programs were effective, children were to be surveyed twice with a pre–post experimental design (Heard, 2018). It was statistically shown that there was significant difference between control and experimental groups after the educational session, although they had about similar mean score during pre-testing. Moreover, the knowledge score in pre-test and post- test had been compared (Table 4.4) and shows that the primary school children done better in post- test in all section.

For section A, which the children were educated on reporting an emergency. Similarly, this section was also asked in the previous study done in Southwest China (Shi et al., 2016). Playing with fire or touching hot objects can result in burns, causing intense pain and often long-term consequences (WHO, 2008). Therefore, children should be educated on identifying whether or not the objects give harm to them. Apart from that, it is very important for children to know about what to do in the event of clothing catching fire. If properly managed, the fire could be put out before burn injury happens or could cause minimal burn injury (Heard, 2018).

The overall assessment shows that the school children's knowledge about this topic had been promoted significantly p -value <0.001 (Table 4.5). The significant difference between the pre-test and post-test, based on the results, is the sign of successful knowledge transfer through intervention learning model (Sedighi *et al.*, 2012).

5.4 Conclusion and Recommendation

Fire and burns are indeed a growing health problem which deserves more attention than being currently given. There is a need for educational and intervention programmes to increase the awareness and understanding fire and burn prevention in Malaysia and to make the home a safe environment for children.

Based on the research, recommendations for future study should include a diverse population of families that involves all ethnicities, education and income levels and type of home. For intervention study, education should focus on most common risk factors and preventing the most common causes of fire and burn injuries. Other than that, engagement of both parents and children should be made so safety messages can be reinforced at home.

It is recommended to include some content related to fire and burns prevention and control methods and precaution in academic curriculum or in co-curriculum activity of students. This is because they are useful for creating a climate in which campaigns for changes in behaviour will be supported. For prevention purposes, educational programmes are often combined with programmes involving legislations and standards and product modifications.

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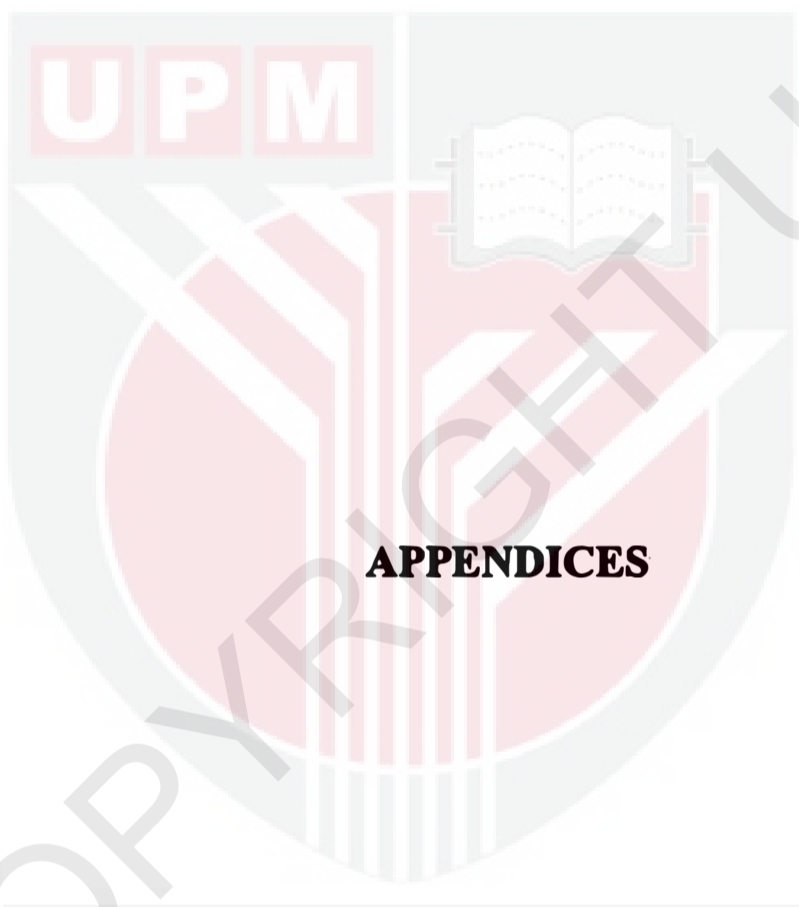
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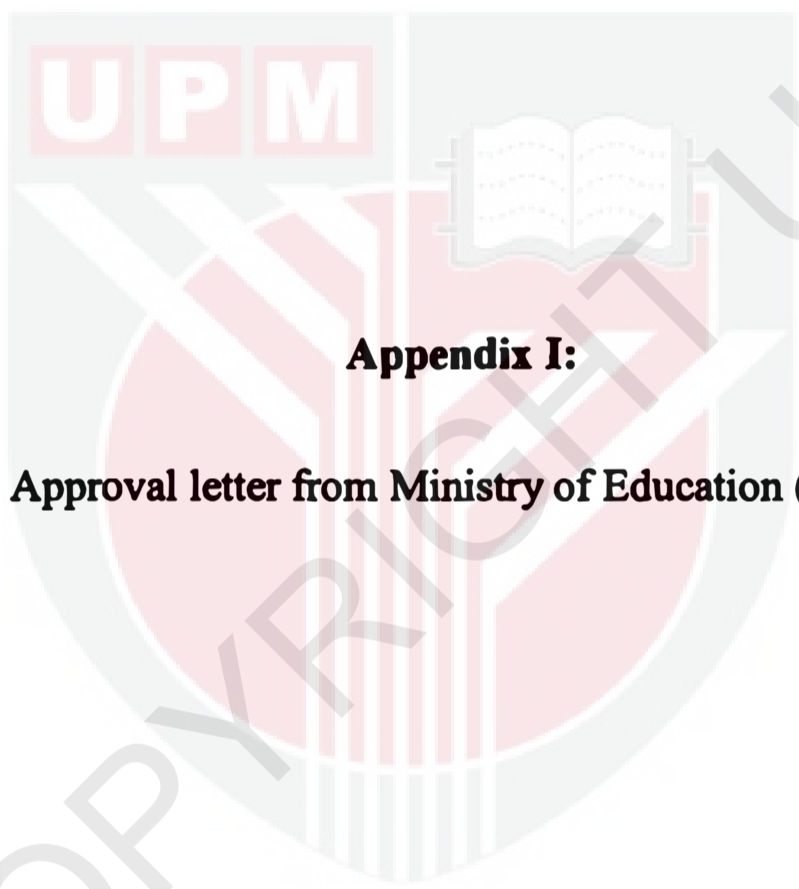
Zaleha, M. S. S. (1994). Home accidents among children below 6 years in Taman Soga, Batu Pahat, Johor. Thesis for Masters in Community Health. Universiti Kebangsaan Malaysia.





APPENDICES

UPM



Appendix I:

Approval letter from Ministry of Education (MoE)

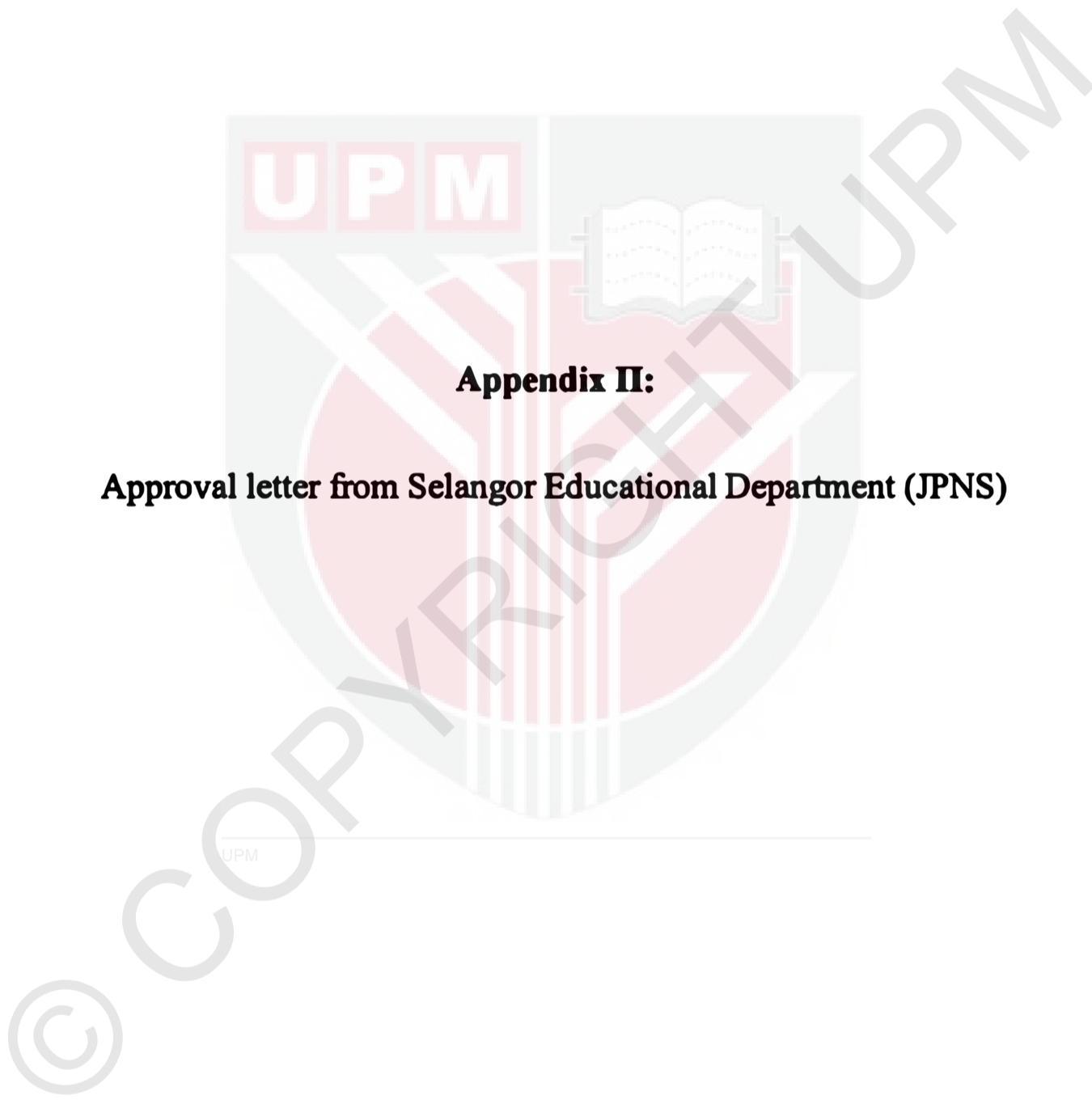
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Appendix II:

Approval letter from Selangor Educational Department (JPNS)





Appendix III:

**Ethical approval letter from Ethics Committee for Research Involving Human Subjects of
Universiti Putra Malaysia**

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

Research title	: The Effectiveness of Fire and Burns at Home Education Among Primary School Children in Hulu Langat, Selangor
Study Site	: Hulu Langat, Selangor
JKEUPM Ref No.	: JKEUPM-2017-193
Researcher	: Siti Nabila Ahmad
Supervisor	: Assoc Prof. Dr. Haliza Abdul Rahman

Documents received and reviewed with reference to the above study:

1. Ethics Application Form, Version 2 dated 20/12/2017
2. Respondent Information Sheet & Guardian's/Parent's Consent (English), Version 2 dated 27/11/2017
3. Respondent Information Sheet & Guardian's/Parent's Consent (Malay), Version 2 dated 27/11/2017
4. Respondent Information Sheet & Consent (English), Version 3 dated 28/12/2017
5. Respondent Information Sheet & Consent (Malay), Version 3 dated 28/12/2017
6. Proposal (English), Version 2 dated 20/12/2017
7. Questionnaire (Malay), Version 2 dated 27/11/2017
8. Curriculum Vitae of:
 - a. Assoc Prof. Dr. Haliza Abdul Rahman

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

Decision by JKEUPM:

Approved

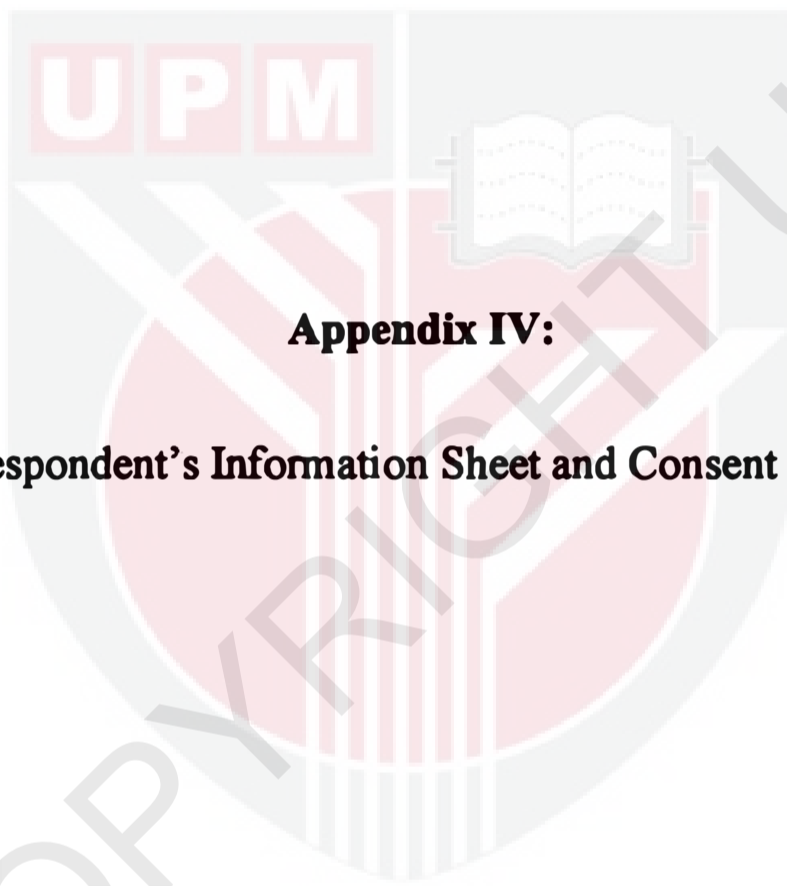
Permission MUST BE OBTAINED from the respective hospitals/ institutions before conducting the research

Disapproved

Please note that the approval is **VALID UNTIL 5 JANUARY 2019**

Researchers should comply with the following:

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



Appendix IV:

Form 2.4: Respondent's Information Sheet and Consent (Malay version)

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

BORANG 2.4: PENERANGAN DAN PERSETUJUAN RESPONDEN

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

1. TAJUK KAJIAN

Tahap Keberkesanan Program Pembelajaran Keselamatan Kebakaran di Rumah Dalam Kalangan Pelajar Sekolah Rendah di Daerah Hulu Langat, Selangor

2. PENGENALAN

Kecederaan dalam kalangan kanak-kanak telah menjadi permasalahan global. Menurut Pertubuhan Kesihatan Dunia (WHO), kemalangan yang menimpa kanak-kanak termasuklah kemalangan yang membabitkan api dan kebakaran di rumah (2008). Insiden kemalangan ini adalah boleh dicegah. Untuk itu, kajian ini dijalankan untuk melihat keberkesanan program pembelajaran mengenai api dan kebakaran dalam kalangan pelajar sekolah rendah.

3. APAKAH YANG PERLU ANDA LAKUKAN?

- i. Ibu bapa/Penjaga diminta untuk menandatangani borang persetujuan bagi pihak kanak-kanak untuk melibatkan diri dalam kajian ini. Penyertaan dalam kajian ini adalah secara sukarela.
- ii. Responden akan diberikan penerangan mengenai tujuan kajian ini dijalankan.
- iii. Responden akan dibahagikan kepada dua kumpulan iaitu kumpulan kawalan dan kumpulan eksperimen.
- iv. Kesemua responden daripada kedua-dua kumpulan dikehendaki untuk menjawab soalan-soalan yang terkandung dalam borang soal selidik yang disediakan.
- v. Program pembelajaran hanya akan dijalankan kepada kumpulan eksperimen di mana mereka dikehendaki untuk menyertai sebuah program pendidikan. Sepanjang program ini, peserta akan didedahkan kepada pengetahuan dan informasi mengenai keselamatan kebakaran di rumah. Program ini akan dijalankan selama 30 minit.
- vi. Selepas seminggu, peserta daripada kedua-dua kumpulan diminta untuk menjawab semula borang kaji selidik yang telah disediakan.

4. SIAPA YANG TIDAK BOLEH MENYERTAI KAJIAN INI?

Responden akan dipilih dalam kalangan pelajar Tahun 4 dan tahun 5 yang hadir ketika kajian dijalankan. Walaubagaimanapun, pelajar yang tidak boleh membaca akan dikecualikan daripada terlibat dalam kajian ini.

5. APAKAH FAEDAH MENYERTAI KAJIAN INI?

a) KEPADA ANDA SEBAGAI PESERTA?

Di akhir kajian ini, peserta akan dapat memahami tentang cara-cara untuk mengelakkan diri daripada kecederaan api dan kebakaran. Selain daripada itu, peserta juga akan mengetahui langkah-langkah yang perlu diambil sekiranya berlaku kecemasan di rumah. Untuk para pelajar kumpulan kawalan, mereka akan menjadi indikator untuk merancang pelan masa hadapan dalam mencegah kemalangan api dan kebakaran di rumah. Penambahbaikan untuk meningkatkan pengetahuan pelajar mengenai keselamatan api boleh dicadangkan bergantung kepada hasil keputusan kajian ini.

b) KEPADA PENYELIDIK?

Kajian ini akan membantu penyelidik untuk mengetahui tahap keberkesanan program pembelajaran keselamatan api dan kebakaran di rumah. Penyelidik juga dapat mengetahui dan membandingkan tahap pengetahuan mengenai kebakaran dan api di rumah antara sekolah yang terpilih di lokasi yang berbeza.

6. ADAKAH IA BERISIKO?

Kajian ini tidak mempunyai sebarang risiko terhadap responden.

7. ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Semua maklumat yang diperolehi dalam kajian ini adalah sulit dan akan dirahsiakan. Bagaimanapun, keputusan individu boleh dilaporkan kepada responden sekiranya terdapat sebarang permintaan.

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

Sekiranya anda mempunyai sebarang pertanyaan semasa penyelidikan, anda boleh menghubungi kami untuk maklumat lanjut.

Siti Nabila Ahmad (Pelajar Sarjana Muda)	Prof. Madya Dr. Haliza Abdul Rahman (Penyella Projek)
Emel: s.nabilaahmad@gmail.com	Emel: dr.haliza@upm.edu.my
Tel: 014-2346150	Tel: +60389472403
Jabatan Kesihatan Persekitaran dan Pekerjaan, Fakulti Perubatan dan Sains Kesihatan, Univeriti Putra Malaysia, 43400, Serdang, Selangor.	

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

9. PERSETUJUAN

Saya..... No Kad Pengenalan.

beralamat.....

.....dengan ini bersetuju untuk mengambil bahagian secara sukarela dalam penyelidikan yang tersebut di atas *(kajian klinikal/percubaan ubat-ubatan/rakaman video/kumpulan sasaran/temuduga/ soal selidik).

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

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

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

*potong yang tidak berkenaan

Tandatangan
(Responden)

Tandatangan
(Saksi)

Tarikh :.....

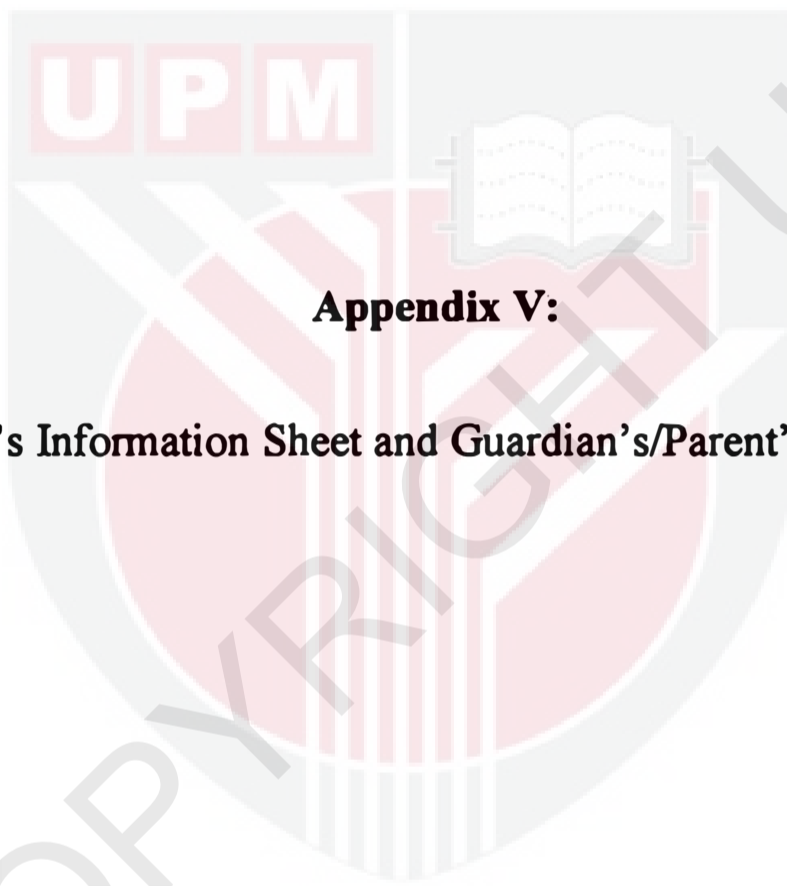
Nama :.....

No. K/P:

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

Tarikh

Tandatangan
(Penyelidik)



Appendix V:

Form 2.5: Respondent's Information Sheet and Guardian's/Parent's Consent (Malay Version)

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BORANG 2.5: PENERANGAN DAN PERSETUJUAN PENYERTAAN (IBUBAPA/PENJAGA)

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

1. TAJUK KAJIAN

Tahap Keberkesanan Program Pembelajaran Keselamatan Kebakaran di Rumah Dalam Kalangan Pelajar Sekolah Rendah di Daerah Hulu Langat, Selangor.

2. PENGENALAN

Kecederaan dalam kalangan kanak-kanak telah menjadi permasalahan global. Menurut Pertubuhan Kesihatan Dunia (WHO), kemalangan yang menimpa kanak-kanak termasuklah kemalangan yang membabitkan api dan kebakaran di rumah (2008). Insiden kemalangan ini adalah boleh dicegah. Untuk itu, kajian ini dijalankan untuk melihat keberkesanan program pembelajaran mengenai api dan kebakaran dalam kalangan pelajar sekolah rendah.

3. APAKAH YANG PERLU ANDA LAKUKAN?

- i. Ibu bapa/Penjaga diminta untuk menandatangani borang persetujuan bagi pihak kanak-kanak untuk melibatkan diri dalam kajian ini. Penyertaan dalam kajian ini adalah secara sukarela.
- ii. Responden akan diberikan penerangan mengenai tujuan kajian ini dijalankan.
- iii. Responden akan dibahagikan kepada dua kumpulan iaitu kumpulan kawalan dan kumpulan eksperimen.
- iv. Kesemua responden daripada kedua-dua kumpulan dikehendaki untuk menjawab soalan-soalan yang terkandung dalam borang soal selidik yang disediakan.
- v. Program pembelajaran hanya akan dijalankan kepada kumpulan eksperimen di mana mereka dikehendaki untuk menyertai sebuah program pendidikan. Sepanjang program ini, peserta akan didedahkan kepada pengetahuan dan informasi mengenai keselamatan kebakaran di rumah. Program ini akan dijalankan selama 30 minit.
- vi. Selepas seminggu, peserta daripada kedua-dua kumpulan diminta untuk menjawab semula borang kaji selidik yang telah disediakan.

4. SIAPA YANG TIDAK BOLEH MENYERTA KAJIAN INI?

Responden akan dipilih dalam kalangan pelajar Tahun 4 dan tahun 5 yang hadir ketika kajian dijalankan. Walaubagaimanapun, pelajar yang tidak boleh membaca akan dikecualikan daripada terlibat dalam kajian ini.

5. APAKAH FAEDAH MENYERTA KAJIAN INI?

a) KEPADA PESERTA?

Di akhir kajian ini, peserta akan dapat memahami tentang cara-cara untuk mengelakkan diri daripada kecederaan api dan kebakaran. Selain daripada itu, peserta juga akan mengetahui langkah-langkah yang perlu diambil sekiranya berlaku kecemasan di rumah. Untuk para pelajar kumpulan kawalan, mereka akan menjadi indikator untuk merancang pelan masa hadapan dalam mencegah kemalangan api dan kebakaran di rumah. Penambahbaikan untuk meningkatkan pengetahuan pelajar mengenai keselamatan api boleh dicadangkan bergantung kepada hasil keputusan kajian ini.

b) KEPADA PENYELIDIK?

Kajian ini akan membantu penyelidik untuk mengetahui tahap keberkesanan program pembelajaran keselamatan api dan kebakaran di rumah. Penyelidik juga dapat mengetahui dan membandingkan tahap pengetahuan mengenai kebakaran dan api di rumah antara sekolah yang terpilih di lokasi yang berbeza.

6. ADAKAH IA BERISIKO?

Kajian ini tidak mempunyai sebarang risiko terhadap responden.

7. ADAKAH MAKLUMAT DAN IDENTITI SAYA KEKAL RAHSIA?

Semua maklumat yang diperolehi dalam kajian ini adalah sulit dan akan dirahsiakan.

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

Sekiranya anda mempunyai sebarang pertanyaan semasa penyelidikan, anda boleh menghubungi kami untuk maklumat lanjut:

Siti Nabila Ahmad (Pelajar Sarjana Muda)	Prof. Madya Dr. Haliza Abdul Rahman (Penyella Projek)
Emel: s.nabilaahmad@gmail.com	Emel: dr.haliza@upm.edu.my
Tel: 014-2346150	Tel: +60389472403
Jabatan Kesihatan Persekitaran dan Pekerjaan, Fakulti Perubatan dan Sains Kesihatan, Univeriti Putra Malaysia, 43400, Serdang, Selangor.	

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

9. PERSETUJUAN

Saya..... No Kad Pengenalan.
beralamat.....
.....dengan ini secara sukarela bersetuju membenarkan *anak / jagaan
saya.....menyertai penyelidikan klinikal
*(pengajian klinikal/ pengajian soal selidik) seperti yang disebut di atas.

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

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

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

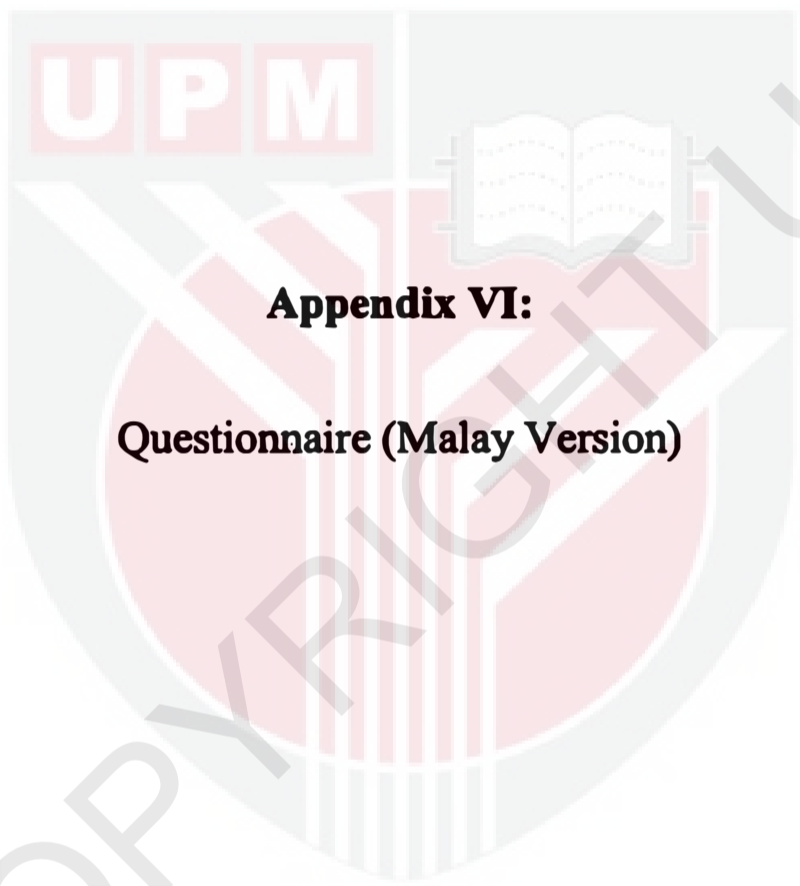
*potong yang tidak berkenaan

Tandatangan Tandatangan
(IbuBapa/Penjaga) (Saksi)

Tarikh :..... Nama :.....
No. K/P:

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

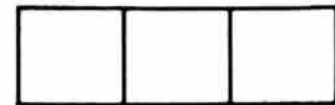
Tarikh Tandatangan
(Penyelidik)



Appendix VI:

Questionnaire (Malay Version)

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**TAHAP KEBERKESANAN PROGRAM PEMBELAJARAN KESELAMATAN KEBAKARAN
DI RUMAH DALAM KALANGAN PELAJAR SEKOLAH RENDAH DI DAERAH HULU
LANGAT, SELANGOR**

Tujuan borang soal selidik ini adalah untuk mendapatkan maklumat daripada pihak anda berkaitan tahap pengetahuan dan kesedaran mengenai keselamatan kebakaran di rumah dalam kalangan pelajar sekolah rendah. Jawapan anda akan diproses menggunakan sistem komputer dan dikendalikan secara sulit dan rahsia. Tiada hasil jawapan individu akan dibentangkan atau diterbitkan dalam apa-apa jua bentuk perbentangan dan penerbitan. Walaupun kami menginginkan anda untuk menjawab semua soalan yang dilampirkan, anda mempunyai hak untuk tidak menjawab salah satu soalan, sekumpulan soalan, ataupun seluruh borang soal selidik ini. Oleh yang demikian, saya memohon jasa baik pihak tuan/puan untuk menjawab soalan-soalan yang terkandung dalam borang soal selidik ini dengan tepat dan jujur. Segala maklumat kajian yang diterima akan dirahsiakan. Kerjasama daripada pihak tuan/puan amatlah dihargai dan didahulukan dengan ucapan terima kasih.

Saya telah membaca dan memahami pengenalan borang soal selidik dan bersetuju untuk menjawab berdasarkan syarat-syarat yang telah ditetapkan.	*Ya/Tidak *potong yang tidak berkenaan
--	---

Tarikh:

Tandatangan:

Arahan: Tandakan (√) pada bahagian yang berkenaan.

BAHAGIAN A: Maklumat Responden

1) Nama:

2) Nama Sekolah:

3) Umur:

10 Tahun

11 Tahun

4) Jantina:

Lelaki

Perempuan

5) Bangsa:

Melayu

Cina

India

Lain-lain

	YA	TIDAK
6) Pernahkah anda mengalami kemalangan berkaitan api atau objek panas di rumah?		
7) Adakah rumah anda pernah mengalami kebakaran?		



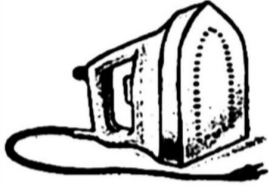






BAHAGIAN B: Menghubungi Talian Kecemasan

Tandakan (√) pada jawapan yang dirasakan betul.

	KECEMASAN	BUKAN KECEMASAN
1) Adik saya tidak boleh bernafas secara tiba-tiba.		
2) Saya melihat kebakaran berlaku di rumah jiran saya.		
3) Kucing saya telah hilang sehari-hari tanpa sebarang berita.		
4) Saya tidak menjumpai buku teks saya di semua tempat.		
5) Saya ingin berlatih untuk menghubungi talian kecemasan.		
6) Langsir rumah saya terbakar dan api merebak di seluruh kawasan rumah.		
7) Ayah saya tidak sedarkan diri dan saya tidak tahu untuk berbuat apa-apa.		
8) Ibu saya telah memarahi saya kerana pasunya telah pecah.		

BAHAGIAN C: OBJEK YANG BOLEH DISENTUH

Tandakan (✓) pada jawapan yang dirasakan betul.

	SENTIASA SEJUK	BERKEMUNGKINAN SEJUK ATAU PANAS
 <p>Ais</p>		
 <p>Unggun api</p>		
 <p>Seterika</p>		
 <p>Kon Aiskrim</p>		
 <p>Kuali</p>		
 <p>Dapur masak atau oven</p>		
 <p>Pemetik api</p>		
 <p>Aiskrim potong</p>		
 <p>Makanan yang baru dimasak</p>		

BAHAGIAN D: API PADA PAKAIAN

1) Manakah cara yang perlu dilakukan sekiranya pakaian anda terbakar?



A.



B.



C.



D.

2) Bilakah anda perlu melakukan langkah di bawah?



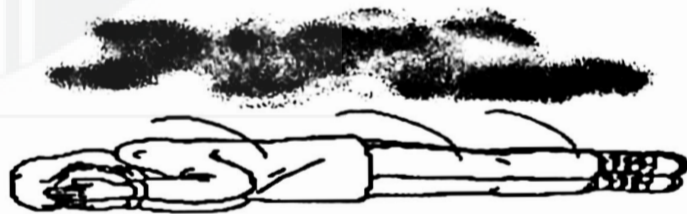
A. Ketika saya ingin keluar dari rumah



B. Jika pakaian saya terkena api



C. Jika penggera asap berbunyi

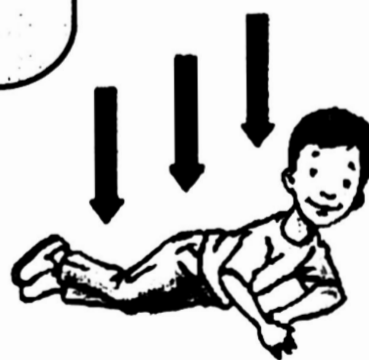


D. Jika saya perlu melalui kawasan berasap

3) Susun gambar di bawah dengan memberikan nombor (1, 2 dan 3) pada ruangan kosong. Susun mengikut urutan sekiranya pakaian anda terkena api.



Berguling



Rebahkan badan

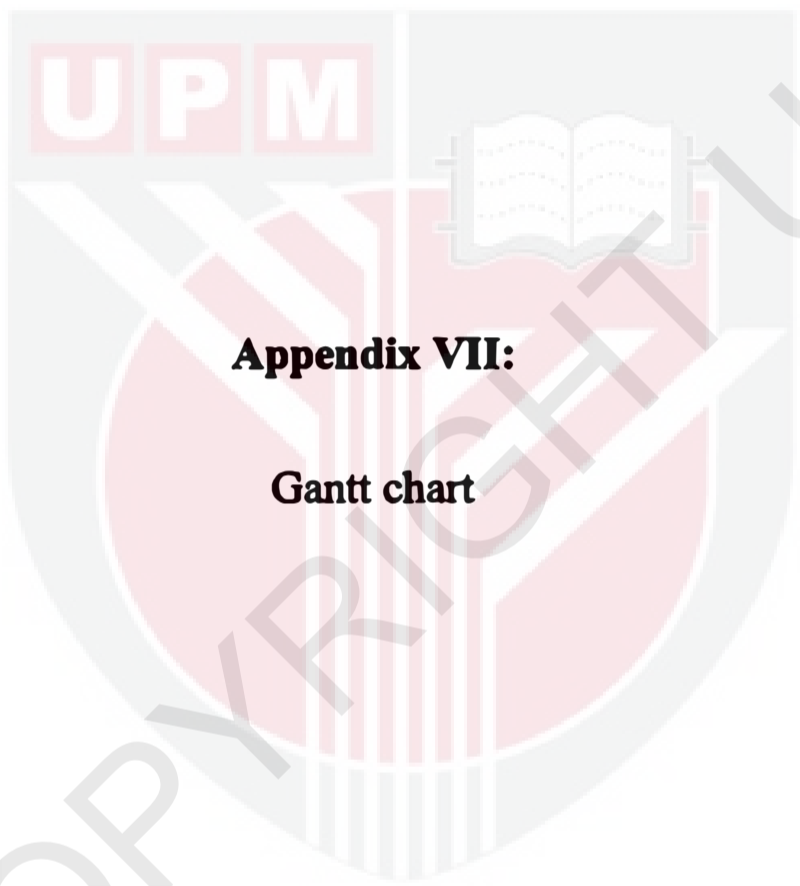


Berhenti

**BAHAGIAN E: PERSEDIAAN UNTUK MENCEGAH DAN MENYELAMATKAN DIRI
DARIPADA KEBAKARAN**

Apakah perkara yang perlu anda lakukan sebagai persediaan untuk mencegah/menyelamatkan diri daripada situasi kebakaran/kecemasan? Tandakan (√) pada perkara yang dirasakan perlu dan (X) pada perkara yang dirasakan tidak sesuai.

1) Anda perlu memastikan bahawa setiap bilik di rumah anda mempunyai dua tempat keluar?	
2) Sekiranya berlaku kecemasan, anda dan keluarga anda perlu berkumpul di dalam rumah?	
3) Anda perlu melaporkan kepada Polis Diraja Malaysia (PDRM) sekiranya terdapat kebakaran berlaku?	
4) Nombor telefon kecemasan yang perlu dihubungi adalah 999?	
5) Anda akan membawa semua barang berharga ketika menyelamatkan diri?	
6) Anda akan menyelamatkan diri terlebih dahulu dan menyerahkan usaha penyelamatan yang lain kepada Pegawai Bomba?	
7) Sekiranya terdapat ahli keluarga mengalami kecederaan, adakah anda perlu memberitahu kepada ibu bapa atau orang yang lebih dewasa?	
8) Jika berlaku kecemasan, adakah anda perlu menyelamatkan diri dengan tergesa-gesa?	



Appendix VII:

Gantt chart

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