

**KNOWLEDGE AND PRACTICE OF FIRST AID ON
BURNS AMONG PARENTS IN HOSPITAL
UNIVERSITI SAINS MALAYSIA, KELANTAN**

by

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TABLE OF CONTENT

	Pages
DECLARATION.....	i
CERTIFICATE.....	ii
ACKNOWLEDGEMENT.....	iii
TABLE OF CONTENT.....	iv
LIST OF TABLES.....	viii
LIST OF FIGURES.....	ix
LIST OF ABBREVIATIONS.....	x
ABSTRACT.....	xi
CHAPTER 1: INTRODUCTION	
1.1 Background of the Study.....	1
1.2 Problem Statement.....	2
1.3 Research Objectives	
1.3.1 General Objectives.....	5
1.3.2 Specific Objectives.....	5
1.4 Research Questions.....	5
1.5 Hypothesis.....	6
1.6 Definition of Terms (Operational).....	6
1.7 Significance of the Study.....	7
CHAPTER 2: LITERATURE REVIEW	
2.1 Introduction.....	8
2.2 Review of Literature	
2.2.1 Definition of First Aid of Burns.....	8
2.2.2 Classification of Burns.....	8
2.2.3 Prevalence of Burns Injury.....	9

2.2.4 Risk Factors of Burn.....	11
2.2.5 Setting of Burns.....	12
2.2.6 First Aid for Burns Injury.....	12
2.2.7 Prevention from Burns.....	13
2.3 Conceptual/ Theoretical Framework.....	14
CHAPTER 3: RESEARCH METHODOLOGY	
3.1 Research Design.....	17
3.2 Population and Setting.....	17
3.3 Sampling Plan	
3.3.1 Sample.....	17
3.3.2 Sampling Method.....	18
3.3.3 Sampling Size.....	18
3.4 Variables	
3.4.1 Variables Measurement.....	19
3.5 Instrumentation	
3.5.1 Instrument.....	20
3.5.2 Translation of Instrument.....	20
3.5.3 Validity and Reliability.....	21
3.6 Ethical Considerations.....	21
3.7 Data Collection Plan.....	21
3.7.1 Flow Chart of Data Collection.....	22
3.8 Data Analysis.....	23
3.9 Expected Outcome.....	23

CHAPTER 4: DATA ANALYSIS AND RESULTS

4.1 Introduction.....	24
4.2 Demographic Characteristics	
4.2.1 Demographic data.....	25
4.2.2 Knowledge of First Aid on Burns among Parents.....	27
4.3 Score of Knowledge of First Aid on Burns among Parents.....	29
4.4 The Association between the Knowledge of First Aid on Burns with Selected Demographic Data (Age, Gender, and Level of education) among Parents in Hospital USM.....	30
4.5 The Association between the Knowledge of First Aid on Burns with Previous First Aid Training.....	31
4.6 The Common Practices of First Aid on Burns among Parents	
4.6.1 Descriptive Statistics of First Aid on Burns.....	31
4.6.2 The Common Practices of First Aid on Burns.....	32
4.6.3 Traditional and Herbal Practices that being used as First Aid on Burns.....	33

CHAPTER 5: DISCUSSION

5.1 Introduction.....	34
5.2 Demographic Characteristics	34
5.3 Score of Knowledge of First Aid on Burns among Parents.....	35
5.4 The Association between the Knowledge of First Aid on Burns with Selected Demographic Data (Age, Gender, and Level of education) among Parents in Hospital USM.....	36
5.5 The Association between the Knowledge of First Aid on Burns with Previous First Aid Training.....	37
5.6 The Common Practices of First Aid on Burns among Parents.....	38

CHAPTER 6: CONCLUSION

6.1 Introduction.....	39
6.2 Conclusion.....	39
6.3 Strength and Limitation.....	40
6.4 Recommendation.....	41
6.4.1 Nursing Practice.....	41
6.4.2 Nursing Education.....	42
6.4.3 Nursing Research.....	42
6.5 Theoretical Implication.....	42
REFERENCES.....	43

APPENDIXES

Appendix A: Research Information- Parents.....	46
Appendix B: Consent Form.....	52
Appendix C: Questionnaire.....	54
Appendix D: Permission to use questionnaire.....	60
Appendix E: Ethical Approval.....	61
Appendix F: Permission to conduct the study.....	64
Appendix G: Gantt Chart.....	68

LIST OF TABLES

Tables	Page
Table 1.1 Statistic of burns injury patients admits to Accident and Emergency Department and Burn Unit Ward in Hospital USM.....	4
Table 2.1 Leading cause of death in children for both sexes in the world.....	10
Table 3.1 Scoring of First Aid Knowledge on Burns.....	19
Table 4.1 Demographic characteristics of the subjects (n=124).....	26
Table 4.2 Knowledge of First Aid on Burns among parents in Hospital USM.....	28
Table 4.3 Mean and Standard Deviation of Knowledge of First Aid on Burns.....	29
Table 4.4 The association between the knowledge of first aid on burns with the selected demographic data (age, gender and level of education).....	30
Table 4.5 The association between the knowledge of first aid on burns with previous first aid training.....	31
Table 4.6 Descriptive statistics for Practice of first aids on burns.....	32

LIST OF FIGURES

Figures		Page
Figure 2.1	Health Belief Model.....	16
Figure 3.1	Flow Chart of Data Collection	22
Figure 4.1	Score Of Knowledge Of First Aid On Burns Among Parents In Hospital USM.....	29
Figure 4.2	The common practices of first aid on burns.....	32
Figure 4.3	Herbal or traditional practices that being used as first aid on burns.....	33

LIST OF ABBREVIATIONS

HBM	-	Health Belief Model
SPSS	-	Statistical Package for the Social Sciences
UNICEF	-	United Nation Children's Fund
USM	-	Universiti Sains Malaysia
WHO	-	World Health Organization

KNOWLEDGE AND PRACTICE OF FIRST AID ON BURNS AMONG PARENTS IN HOSPITAL UNIVERSITI SAINS MALAYSIA, KELANTAN

ABSTRACT

The purpose of this cross-sectional study was to determine the Knowledge and Practices of First Aid on Burns among parents in Hospital Universiti Sains Malaysia (USM). The health belief model was used as theoretical framework of the study.

Self-administered questionnaire was used and 124 subjects were recruited in this study. Before they enrolled in this study, subjects were consented and being informed about the protocol of the study. A pilot study had been done among 30 subjects to check the reliability and validity of the study. Score of knowledge of first aid on burns was evaluated during the data analysis. The Pearson's Chi- Square test was used to test whether there was any significant association between score of knowledge of first aid on burns with selected demographic data (age, gender, and level of education) and with previous aid training. The common practices of first aid on burns with traditional and herbal practices as first aid also being tested in this study. From this study, score of knowledge of first aid on burns among parents in Hospital USM were at contraindicated score (38.7%). Significant association was found between the knowledge of first aid on burns with the previous training. The most practices that been used as first aid on burns was by using running water on the burn injury but there's still that used toothpaste that apply on the burns injury as first aid on burns before seek for medical treatment.

There is a need for health care professionals to empower the public on knowledge and practices of first aid on burns because burn injury sometimes occurs at home or at working area. It is hoped that this study will help to expand the knowledge and serve as reference to help in improving the management of first aid on burns in Malaysia, as well as improve in nursing service and related research.

PENGETAHUAN DAN AMALAN PERTOLONGAN CEMAS TERHADAP LUKA
LECUR DALAM KALANGAN IBU BAPA DI HOSPITAL UNIVERSITI SAINS
MALAYSIA, KELANTAN

ABSTRAK

Tujuan kajian keratan rentas ini adalah untuk menentukan pengetahuan dan amalan pertolongan cemas pada luka lecur dalam kalangan ibu bapa di Hospital Universiti Sains Malaysia (USM). Model kepercayaan kesihatan telah digunakan sebagai rangka kerja teori kajian.

Soal selidik 'self-administered' telah digunakan dan seramai 124 orang ibu bapa telah diperuntukkan dalam kajian ini. Sebelum mereka mendaftar dalam kajian ini, responden telah bersetuju dan dimaklumkan mengenai protokol kajian. Kajian rintis telah dilakukan dalam kalangan 30 orang responden untuk memeriksa kebolehpercayaan dan kesahihan soalan kajian. Skor pengetahuan pertolongan cemas terhadap luka lecur telah dinilai semasa analisis data. Ujian Pearson telah digunakan untuk menguji perkaitan signifikansi antara skor pengetahuan pertolongan cemas terhadap luka lecur dan demografik yang terpilih (umur, jantina dan tahap pendidikan) dan dengan latihan pertolongan cemas yang lalu. Amalan pertolongan cemas terhadap luka lecur yang selalu di amalkan serta rawatan tradisional dan herba sebagai pertolongan cemas luka lecur juga di kaji dalam kajian ini. Daripada kajian ini, skor pengetahuan petolongan cemas terhadap luka lecur dalam kalangan ibu bapa di Hospital USM adalah berada di tahap kontraindikasi (38.7%). Perkaitan bermakna didapati antara pengetahuan pertolongan cemas terhadap luka lecur dengan latihan pertolongan cemas yang lalu. Amalan pertolongan cemas terhadap luka lecur yang banyak digunakan oleh responden ialah mengalirkan air di atas luka lecur tetapi masih ada yang memilih untuk menggunakan ubat gigi yang diaplikasikan ke atas luka lecur sebagai pertolongan cemas luka lecur sebelum mendapatkan rawatan lanjut. Adalah diharapkan kajian ini akan membantu untuk mengembangkan pengetahuan dan amalan pertolongan cemas terhadap luka lecur dalam semua peringkat umur kerana luka lecur sering berlaku di rumah mahupun di tempat kerja. Adalah diharapkan kajian ini akan dapat membantu untuk mengembangkan pengetahuan dan sebagai rujukan unutm membantu meningkatkan pengurusan pertologan cemas terhadap luka lecur di Malaysia serta meningkatkan perkhidmatan kejururawatan dan penyelidikan yang berkaitan.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

A burn is an injury to the skin or other organic tissue primarily caused by heat or due to radiation, radioactivity, electricity, friction or contact with chemicals and it is accounting for an estimated 265,000 deaths annually (World Health Organization, 2014). Burn is one of the injuries that occur among the community and also a major global public health crisis (Peck, Kruger, van der Merwe, Godakumbura, and Ahuja, 2008). Moreover, approximately 90 per cent of burns occur in low to middle income countries, regions that generally lack the necessary infrastructure to reduce the incidence and severity of burns (Peck, 2011) and burns also are the fourth most common type of trauma worldwide, following traffic accidents, falls, and interpersonal violence (World Health Organization, 2010).

In addition, there are four types of burns that lead to injury that are thermal, chemical, electricity and radiation. Thermal burns or known as heat burns are caused by fire, steam, hot objects, or hot liquids. Scald burns from hot liquids are the most common burns among to children and older adults. Chemical burns are caused by contact with household or industrial chemicals in a liquid, solid, or gas form. Natural foods such as chilli peppers, which contain a substance irritating to the skin, can cause a burning sensation to our skin. Electrical burns are caused by contact with electrical sources or by lightning. Radiation burns are caused by the sun, tanning booths, sunlamps, X-rays, or radiation therapy for cancer treatment (WebMD, 2014).

Burns are not static and may mature. This mean within hours a first-degree of burn may involve deeper structures of skin and become second-degree of burn. People may think of sunburn only, but that blisters on the next day. Similarly, second-degree burns may evolve into third degree-burns. However, it should be noted that the skin is the body's first defences against and the break of the skin will lead to risk of infection at the site of the injury and potentially throughout the body (Benjamin, Melissa and William, 2013).

First aid of burns can reduce the severity and depth of tissue damage and also can improve the outcome, which includes reduction in length of hospitalization and surgical intervention in providing treatment for burns injury (Wallace, O'Neill, Wood, Edgar, & Rea, 2013). The most effective and available method of burn first aid is application of cool running water, with the optimal temperature and duration of exposure being 15°C for 20 minutes (Bartlett, Yuan, Holland, Harvey, Martin and La Hei, 2008). Moreover, this is now the recommended first aid protocol that is being used by the Australian and New Zealand Burn Association.

However, throughout history there have been many different and sometimes bizarre treatments prescribed for burns. Unfortunately many of these treatments still persist today, although they often do not have sufficient evidence to support their use. The common first aid of burns and pre-hospital treatments for burns (water- cold or warm, ice, oils, powders and natural plant therapies), possible mechanisms whereby they might work and the literature which supports their use. Published work to date, indicate that the current recommendations for the first aid treatment of burn injuries is to use cold running tap water (between 2°C and 15°C) on the burn, not the ice or alternative plant therapies (Cuttle and Kimble, 2010).

In Malaysia, mostly of people more believe in traditional treatment rather than directly seek a treatment from the nearest clinic or the hospital especially if only mild burns injury happen at homes such as burns injury of hot water or oil. They rather use soy sauce, butter, toothpaste, cream and other thing that easily found at home as a first aid of burns rather than the recommended first aid for burns which running the water on burns area for about 20 minutes.

1.2 Problem Statement

Burn related injuries are a one of the serious public health problem. The World Health organization (WHO, 2014) estimates that there are approximately 195,000 deaths each year worldwide caused by fire alone, with further mortality from other types of burns related injuries and mostly person who is most death related to fire is children and young adult between 5 and 29 years old each year in USA (WHO, 2009). World Health Organization has stated that the global incidence of burns undergoing medical attention is nearly 11 million people. Awareness of appropriate first aid of burn is low amongst the burn-injured patients and the parents of burn-injured children

(Hillary et al, 2013). In 2005, only 39% of adult patients present at the minor burn facility at Royal Perth Hospital (Australia) had received appropriate first aid and 20.6% had received no first aid at all.

Children are at risk for burn injuries for many reasons and susceptible to being seriously burned because they have thinner skin which also same with the older adults. Young children are more curious and as soon as they begin to explore their surroundings and play with items left within their surrounding especially at home. They come into contact with the objects that can cause severe injuries. Playing with the fire or touching hot objects can result in burns (Children of Fire, 2008). In 2008, there were approximately 403, 000 residential structures fires in the United States, 2780 deaths and 13, 560 injuries resulted. For children less than 14 years, 509 children died which accounted for 13% of fire deaths (Carlee, Julie, Rachel, Lynn and Sarah, 2013).

In Viet Nam, a study compared children who had received immediate cooling with water after a burn with those who had not. It turned out that those who had received proper first aid needed 32% less subsequent grafting (WHO, 2015). Females and males have similar rates for burns according to the most recent data. This is in contrast to the usual injury pattern, where rates of injury for the various injury mechanisms tend to be higher in males than females. Higher risk for females is associated with open fire cooking, or inherently unsafe cook stoves, which can ignite loose clothing. Open flames used for heating and lighting also pose risks, and self-directed or interpersonal violence are also factors (WHO, 2014).

In Malaysia, there are about 75% of burns victim is man and 25% is woman. Selangor had the highest statistics of burns for the whole year which is more than 15,000 burns cases that being reported (Metro, 2014). Other than that, more than half of the unintentional injury cases admitted to Government hospitals from 1999 to 2002 were due to road traffic accidents (source: Ministry of Health Malaysia). Among the males, the proportion of deaths from these accidents was highest among those aged 12 to 19. Falls were the second most common cause of unintentional injuries admitted to Government hospitals, with a higher proportion of cases among males and females aged five to 19. Burns, corrosion and exposure to heat substances, as well as accidental drowning, were also more common among children (UNICEF Malaysia, 2013). A study that had been conduct by Universiti Kebangsaan Malaysia (UKM) in 2002 shown that

61% of Malaysian had burns injury which 27% of it are from the fire and other 10% from electrical injury. Besides that, in among children there are about 95% had burns injury which occur from hot water or oil while another five per cent are causes from playing with fire or lighters.

A parent in Alor Star, Kedah smeared soy sauce on burns injury of their two years old child who fell into hot curry before taking to Hospital Sultanah Bahiyah (Utusan Malaysia, 2008). In Hospital USM alone, patients who were admitted to the emergency and burn unit ward for burn incidents was highest among children aged 0-18 years old. Statistics indicates from 2009 until 2013, a total of 132 children had burns injuries shown in (Table 1.1).

Table 1.1: Statistic of patient admitted to Accident and Emergency Department, and Burn Unit Ward for burn injuries in Hospital USM.

Age	Years					Total
	2009	2010	2011	2012	2013	
0-18 years old	21	16	26	35	34	132
19-40 years old	11	14	10	14	15	64
41-59 years old	4	3	6	8	5	26
60 years and above	3	0	1	4	3	11
Total	39	33	43	61	57	233

Sources: Medical Record Unit Hospital USM, 2014

However, burn first aid varies between nations and between organizations within the same nation which leading to confusion among the public. Cultural beliefs and superstition may contribute to more confusion where in clinical practice, lack of knowledge of burns first aid in the community resulting in toothpaste and other domestic products being applied to their burns site on children. Moreover, it has been well established that burn first aid awareness is poor internationally (Graham, Bache, Muthayya, Baker, & Ralston, 2012).

Statistics indicated that burns injuries are a serious problem in Kelantan. Therefore this study was carried out to understand the level of knowledge and practices of first aid on burns among parents in Hospital USM, Kelantan Darul Naim, Malaysia.

1.3 Research Objectives

1.3.1 General Objectives

The aim of this study is to determine the knowledge and practice of first aid on burns among parents in Hospital Universiti Sains Malaysia.

1.3.2 Specific Objectives

- 1) To determine the score of knowledge of first aid on burn among parents in Hospital Universiti Sains Malaysia.
- 2) To determine the association between the knowledge of first aid on burns with selected demographic data (age, gender and level of education) in Hospital Universiti Sains Malaysia.
- 3) To determine the association between the knowledge of first aid on burns with the previous first aid training among parents in Hospital Universiti Sains Malaysia.
- 4) To describe the common practices of first aid on burns among parents in Hospital Universiti Sains Malaysia.

1.4 Research Questions

- 1) What is the score of knowledge of first aid on burns among parents in Hospital Universiti Sains Malaysia?
- 2) Is there any association between the knowledge of first aid on burns with the selected demographic data (age, gender and level of education) among parents in Hospital Universiti Sains Malaysia?
- 3) Is there any association between the knowledge of first aid on burns with the previous first aid training among parents in Hospital Universiti Sains Malaysia?
- 4) What are the common practices of first aid on burns among parents in Hospital Universiti Sains Malaysia?

1.5 Hypothesis

- 1) **H_O 1**= There is no significant association between the knowledge of first aid on burns with the selected demographic data (age, gender and level of education) among parents in Hospital Universiti Sains Malaysia.

H_A 1= There is significant association between the knowledge of first aid on burns with the selected demographic data (age, gender and level of education) among parents in Hospital Universiti Sains Malaysia.

- 2) **H_O 2**= There is no significant association between the knowledge of first aid on burns with the previous first aid training among parents in Hospital Universiti Sains Malaysia.

H_A 2= There is significant association between the knowledge of first aid on burns with the previous first aid training among parents in Hospital Universiti Sains Malaysia.

1.6 Definition of Term (Operational/ Conceptual)

1.6.1 Knowledge on first aid of burns

Knowledge on first aid of burns in this study refers to general knowledge on first aid such as using cold water, oil, cream, butter, toothpaste and ice and will be measure using questionnaire from the article of 'How do parents know about first aid of burns' (Davies, Maguire, Okolie, Watkins, & Kemp, 2013).

1.6.2 Practice towards first aid of burns

Practice towards first aid of burns in this study refers to the actual application or use of an idea, belief, or method, as opposed to theories relating to first aid of burns injury. This was measured by five questions related to practices of first aid towards burn; what they apply as the first aid on burns injuries; how they apply it, how often they practice the particular first aid on burns and did they take the victims to the nearest clinic or hospital for further treatment.

1.6.3 First Aid of burns

First aid of burns in this study refers to emergency care or treatment given to a person with burn injury before regular medical aid can be obtained such by applying water, ice, toothpaste, oil and cream on the burns site area on the skin.

1.7 Significance of the Study

Findings of this study will indicate knowledge and practice of first aid towards burns among the parents who attends the accident and emergency department and outpatients' clinic. Therefore, this study allowed understanding on the level of knowledge and practice on first aid of burn among parents because burns injury usually occur at home. This study will also help in preventing misperceptions regarding the first aid for burns especially at home. This is because, most people at home will use any other alternatives as first aid of burn such as toothpaste, butter and oil rather than using running water. Although people use running water on burn injuries, often they do not know the recommended time is 20 minutes.

Apart from that, the finding from this study will be useful in understanding the association between the practice of first aid of burns with the selected demographic data (age, gender, and level of education). Based on this, any interventions or awareness programme on the particular population that lacks in the knowledge on first aid for burns could be delivered.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

In this chapter, the literature review consists of prevalence of burns injury; risk factors for burns, setting of burns that usually occur among the community. The most important thing that needs to be done when burn had occurs is the first aid of burn that should be apply by the community when burns had happen to their self or other person and also the prevention way from having a burns injury.

2.2 Review of Literature

2.2.1 Definition of first aid on burns

First aid is an immediate and temporary care that must give to a victim of an accident or sudden illness before the services of a physician is obtained and its purpose is to save life, to prevent further injury and to preserve vitality and resistance to infection. While first aid towards burn injury is done by applying cool running water for 20 minutes. This is done as soon as possible for up 3 hours after the burns injury has occurred (Cuttle and Kimble, 2010).

2.2.2 Classification of Burns Injuries

Burns injuries are classified based upon their depth on the skin. There are three types of burn injury that are first-degree of burn, second-degree of burn and third-degree of burn. Although the term of fourth-degree of burn is not used universally, but it is sometime occurs with the prolonged flame contact or high-voltage injury that destroys all layers of the skin and damages tendons and muscles (Suzanne, Brenda, Janice and Kerry, 2010).

First degree of burn or known as superficial partial-thickness causes local inflammation of the skin which mean it's only occur on the surface of the skin. Sunburns are one of the examples of first-degree burns. The inflammation is characterized by pain, redness, and a mild amount of swelling and can be complete

recovery within a week. The skin may be very tender when need to touch. Second-degree burns or known as deep partial-thickness are deeper and in addition to the pain, redness and inflammation, there is also blistering on the skin (Benjamin, Melissa and William, 2013). This will take a time about two until four week for complete recovery and maybe some scar will be appeared on the skin (Suzanne et al., 2010). Third degree burns or known as full-thickness of burns are deeper, involving all layers of the skin and killing that area of skin. This is because of the nerves and blood vessels are damaged, and burns appear white and leathery and tend to be relatively painless (Benjamin et al, 2013).

2.2.3 Prevalence of Burns

Burn is one of the health problems that need to be addressed by whole population; this is because victims of various ages had to life on with the scar which is not a little when involved in a fire. According to the data from United Kingdom (UK) Office for National Statistics, the leading of cause of death between age of five and 34 years old for years 2009 are accidents and suicides. However, each year as many as 1000 patients are admitted to the Accident and Emergency Department with severe burns requiring fluid resuscitation (Tay, Pinder, Coulson, & Rawlins, 2013)

Based on the WHO Global Burden of Disease: 2004 updated, there are the leading cause of death for children aged 10–19 years. Table 2.1 shows the contributions that the various types of unintentional injuries make to the leading causes of death among children. Road traffic injuries alone are the leading cause of death among 15–19-year-olds and the second leading cause among 10–14-year-olds and fire-related burns injury also being list out as one of the leading cause of death among the children in the world.

Table 2.1: Leading cause of death in children for both sexes in the world.

Rank	Under 1 year	1-4 years	5-9 years	10-14 years	15-19 years	Under 20
1	Perinatal causes	Lower respiratory infections	Lower respiratory infections	Lower respiratory infections	Road traffic injuries	Perinatal causes
2	Diarrhoeal diseases	Diarrhoeal diseases	Road traffic injuries	Road traffic injuries	Self-inflicted injuries	Lower respiratory infections
3	Lower respiratory infections	Measles	Malaria	Drowning	Violence	Diarrhoeal diseases
4	Malaria	Malaria	Diarrhoeal diseases	Malaria	Lower respiratory infections	Malaria
5	Congenital anomalies	HIV/AIDS	Meningitis	Meningitis	Drowning	Measles
6	Pertussis	Congenital anomalies	Drowning	HIV/AIDS	Tuberculosis	Congenital anomalies
7	HIV/AIDS	Protein-energy malnutrition	Protein-energy malnutrition	Tuberculosis	Fire-related burns	HIV/AIDS
8	Tetanus	Drowning	Measles	Diarrhoeal diseases	HIV/AIDS	Road traffic injuries
9	Meningitis	Road traffic injuries	Tuberculosis	Protein-energy malnutrition	Leukaemia	Pertussis
10	Measles	Meningitis	HIV/AIDS	Self-inflicted injuries	Meningitis	Meningitis
11	Protein-energy malnutrition	Fire-related burns	Fire-related burns	Leukaemia	Maternal haemorrhage	Drowning
12	Syphilis	Pertussis	Falls	Fire-related burns	Falls	Protein-energy malnutrition
13	Endocrine disorders	Tuberculosis	Congenital anomalies	var	Poisonings	Tetanus
14	Tuberculosis	Upper respiratory infections	Epilepsy	Violence	Abortion	Tuberculosis
15	Upper respiratory infections	Syphilis	Leukaemia	Trypanosomiasis	Epilepsy	Fire-related burns

Source: WHO (2008), Global Burden of Disease: 2004 update.

Source: World Health Organization (WHO), Global Burden Disease, 2004

In India, over 1 000 000 people are moderately or severely burnt every year while nearly 173 00 children are moderately or severely burnt every year in Bangladesh. In Bangladesh, Colombia, Egypt and Pakistan, 17% of children with burns have a temporary disability and 18% have a permanent disability. Burns are the second most common injury in rural Nepal, accounting for 5% of disabilities. In 2008, over 410 000 burn injuries occurred in the United States of America, with approximately 40 000 requiring hospitalization (WHO, 2009).

In Malaysia, there are about 40,000 patients received a treatment at the hospital due to burns injury each year and 10 per cent were cases of severe burns. The study that had been conducted by Universiti Kebangsaan Malaysia (UKM) in 2002 had shown that 61 per cent of Malaysians affected and 27 per cent of burns injury caused by the fire,

and 10 per cent as a result of electrical fires. In addition, among the children there are about 95 per cent of them have the effect of burns caused by hot water or oil, while five per cent burns due to fire was caused by playing with fire or lighters. Pharmacists from the Guardian, Andrew Kong, said that many had experienced a burns injury at first and second level once in their life, usually as a result of an accident in the kitchen either splashes of hot oil or water or exposed to fire (Utusan Malaysia, 2014).

2.2.4 Risk Factors of Burn Injury

Females and males have broadly similar rates for burns according to the most recent data. This is in contrast to the usual injury pattern, where rates of injury for the various injury mechanisms tend to be higher in males than females due to the workplace (WHO, 2009). The higher risk for females is associated with open fire cooking, or inherently unsafe cook stoves, which can ignite loose clothing. Open flames used for heating and lighting also a risks and self-directed or interpersonal violence are also factors.

Age also is one of the factors of burns where along with adult women; children are particularly vulnerable to burns. Burns are the 11th leading cause of death of children aged one until nine years and are also the fifth most common cause of non-fatal childhood injuries. While a major risk is improper adult supervision, a considerable number of burn injuries in children result from child maltreatment (WHO, 2014).

Children under five in the WHO African Region have almost three times the incidence of burn deaths than infants worldwide. Boys under five years of age living in low- and middle-income countries of the WHO Eastern Mediterranean Region are almost six times as likely to die from burns as boys living in the WHO European Region. The incidence of burn injuries requiring medical care is nearly 20 times higher in the WHO Western Pacific Region than in the WHO Region of the Americas (WHO, 2014).

Other than that, socioeconomic factors also play the role in risk factors of burns where most people living in low- and middle-income countries are at higher risk for burns than people living in high-income countries. Other risk factors for burns are occupations that increase exposure to fire; poverty, overcrowding and lack of proper safety measures; placement of young girls in household roles such as cooking and care

of small children; underlying medical conditions, including epilepsy, peripheral neuropathy, and physical and cognitive disabilities; alcohol abuse and smoking; easy access to chemicals used for assault (such as in acid violence attacks); use of kerosene (paraffin) as a fuel source for non-electric domestic appliances; inadequate safety measures for liquefied petroleum gas and electricity (WHO, 2014).

2.2.5 Setting of Burns

Burns occur mainly in the home and workplace. Community surveys in Bangladesh and Ethiopia show that 80–90% of burns occur at home. Children and women are usually burned in domestic kitchens, from upset receptacles containing hot liquids or flames, or from cook stove explosions. Men are most likely to be burned in the workplace due to fire, scalds, chemical and electrical burns (WHO, 2009).

2.2.6 First Aid for Burns

The earliest known record of burn treatment comes from the ancient Egyptian Ebers Papyrus (dated 1500BC) which contains description of using of mud, excrement, oil and plant extracts on different days after the burn injury has occurred and also the application of frogs boil in oil or fermenting goat dung with rendered pig fat, resin and bitumen, a mixture of honey and so on (Cuttle and Kimble, 2010). However, nowadays the application of treatment is differ from before century and here are the dos and don'ts in stop the burning. The do's in stop the burning processes are by removing clothing and irrigating the burns. Extinguish flames by allowing the patient to roll on the ground, or by applying a blanket, or by using water or other fire-extinguishing liquids. Use cool running water to reduce the temperature of the burn. In chemical burns, remove or dilute the chemical agent by irrigating with large volumes of water. Wrap the patient in a clean cloth or sheet and transport to the nearest appropriate facility for medical care (WHO, 2014).

From the previous study, cold water has been shown to confer many beneficial effects to the patient and also the wound including decreased mortality, pain relief, and decreased cell damaged, stabilisation of vasculature, reduced oedema, improved wound healing and scar formation and finally decreased inflammatory response (Cuttle and Kimble, 2011). Other than that, in clinical studies also shown that using the first aid of cooling treatment associated with improved clinical outcomes such as decreased wound

depth, reduced time for wound re-epithelisation, decreased hospital stay and decreased requirement for grafting and scar management (Skinner and Peat, 2002).

However, the way in which cold water treatment is applied to the wound appears to be more important. A study by Yuan et al., showed that cool running water applied immediately for 20 minutes duration to porcine burns consistently and decreased the histological depth of damage over the course of 9 days compared to wet towels which refresh every 3 minutes, water spray (delivered every 30 minutes) and untreated control (Yuan, Wu, Harvey, Holland, Martin, and La Hei, 2007).

Cold tap water is usually applied as first aid; however the temperature of this water can be varied. Therefore, it is important in knowing the different temperature treatment which will influence the wound outcome.

The don'ts are not start first aid before ensuring our own safety (switch off electrical current, wear gloves for chemicals etc.) Do not apply paste, oil, haldi (turmeric) or raw cotton to the burn. Do not apply ice because it deepens the injury. Avoid prolonged cooling with water because it will lead to hypothermia. Do not open blisters until topical antimicrobials can be applied, such as by a health-care provider. Do not apply any material directly to the wound as it might become infected. Avoid application of topical medication until the patient has been placed under appropriate medical care (WHO, 2014).

2.2.7 Prevention from Burns

Burns are preventable. Thus, high-income countries have made considerable progress in lowering rates of burn deaths, through a combination of prevention strategies and improvements in the care of people affected by burns. Most of these advances in prevention and care have been incompletely applied in low- and middle-income countries. Increased efforts to do so would likely lead to significant reductions in rates of burn-related death and disability (WHO, 2014).

Prevention strategies should address the hazards for specific burn injuries, education for vulnerable populations and training of communities in first aid. An effective burn prevention plan should be multispectral and include wide efforts to improve awareness, develop and enforce effective policy, describe burden and identify risk factors, set research priorities with promotion of promising interventions, provide

burn prevention programmes, strengthen the burn care unit and strengthen the capacities in carry out the above. (WHO, 2014)

Enclose fires and limit the height of open flames in domestic environments. Promote safer cook stoves and less hazardous fuels, and educate regarding loose clothing. Apply safety regulations to housing designs and materials, and encourage home inspections. Improve the design of cook stoves, particularly with regard to stability and prevention of access by children. Lower the temperature in hot water taps. Promote fire safety education and the use of smoke detectors, fire sprinklers, and fire-escape systems in homes. Promote the introduction of and compliance with industrial safety regulations, and the use of fire-retardant fabrics for children's sleepwear. Avoid smoking in bed and encourage the use of child-resistant lighters. Promote legislation mandating the production of fire-safe cigarettes. Improve treatment of epilepsy, particularly in developing countries. Encourage further development of burn-care systems, including the training of health-care providers in the appropriate triage and management of people with burns. And finally, support the development and distribution of fire-retardant aprons to be used while cooking around an open flame or kerosene stove (WHO, 2014).

2.3 Theoretical Framework

In this study, the Health-Belief Model (HBM) is used, as it is useful in identifying the parents' belief about knowledge and practice of first aid of burn when they experience burns injury. According to Nutbeam and Harris, HBM is one of the longest established theoretical models designed to explain health behaviour by better understanding beliefs about health. It was originally articulated to explain why individuals participate in public health programs such as health checks and immunization programs and has been developed for application to other types of health behaviour (Nutbeam and Harris, 2002).

For over four decades, the HBM has been used both to explain change and maintenance of health behaviour and as a guiding framework for health behaviour interventions. The HBM has been used in studying behaviours such as attending screenings for high blood pressure, breast cancer, or hepatitis B; exercising; smoking cessation, compliance with antihypertensive, diabetes self-management, and medication

regimes. This model relates psychological theories of decision making to an individual's decision about health behaviours (Pinto et al., 2006).

In addition, the HBM is a framework that suitable used to motivate people to take positive health actions that use the desire to avoid a negative health consequence as the prime motivation. This model predicts that individuals will take action to protect or promote health if they perceived themselves to be susceptible to a condition or problem and if they believe it will have potentially serious consequences; they perceived threat. They believed course of action is available which will reduce their susceptibility or minimize the consequences and that the benefits of taking action outweigh the costs or barriers.

From an article wrote by (Bajaj, 2003), there are six key concepts that form the health belief models that include (Figure 2.1):

1. Perceived susceptibility refers to a person's belief about the chance of getting a condition. This can be used to make the perceived susceptibility more consistent with an individual's actual risk. In this study, the perceived susceptibility among parents by increasing in awareness of risk factors of burns injury such as open fire cooking, or inherently unsafe cook stoves, which can ignite loose clothing.
2. Perceived severity refers to a person's belief about seriousness of a condition and its sequel. This can be used to specify consequences of the risk and the conditions. This can be applying to describe an experience of parent's to children who have burns injury through their own experience and condition.
3. Perceived benefits are person's beliefs about the efficacy of the advised action to reduce risk or reduce seriousness of the impact of a condition. This can be used to define the action that the parents should take and to clarify the positive effect that can be expected as a resulted of the action. As a result they may reduce the possibility of having burns scalds injury.
4. Perceived barriers are tangible and psychological costs of the advised action. This can be used to identify and reduce the perceived barriers by reassuring the parent's patients, correcting and misinformation.
5. Cues to action, are strategies to activate a person's readiness to act. This can be used to provide information on how to do a task, to promote awareness and use reminder system. In this study, the provided information regarding first aid of

burns will be effectively through doctor, staff nurse, first aid course and also other media.

6. Self-efficacy refers to a person's confidence in his or her own ability to take action. This can be used to provide training and guidance, use progressive goal setting, give verbal reinforcement, demonstrate desired behaviour, and reduce anxiety.

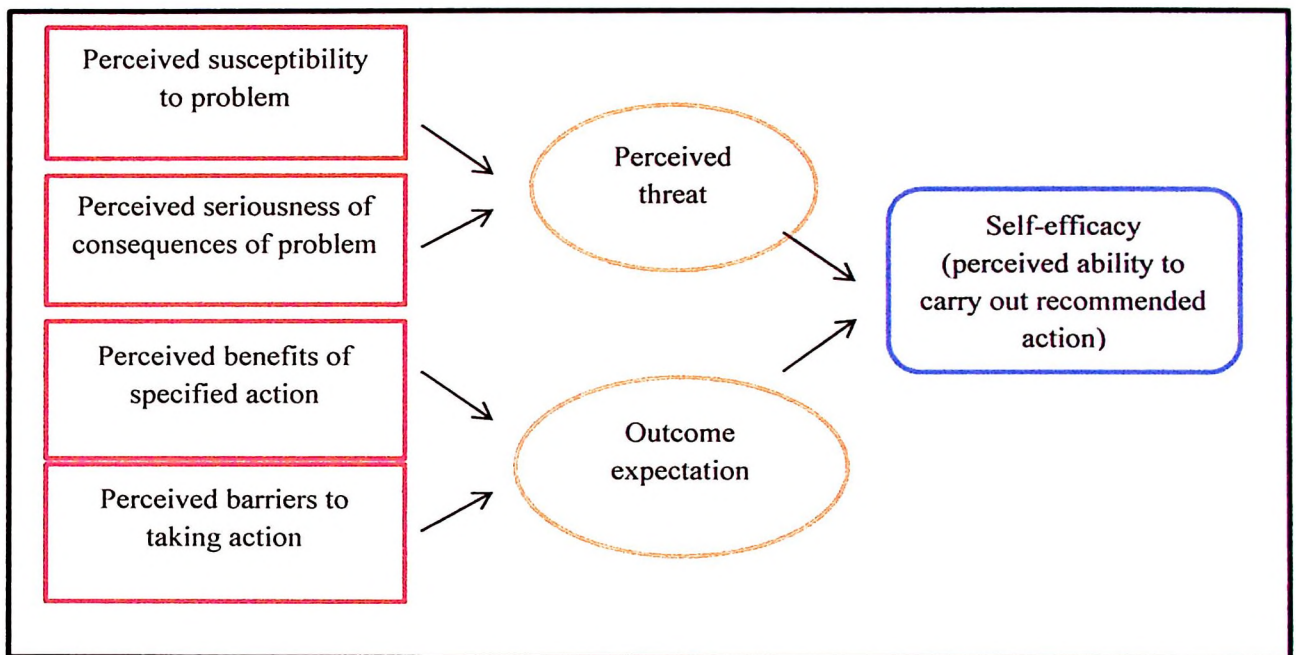


Figure 2.1: Health Belief Model (HBM)

Source: Nutbeam & Harris, 2002

CHAPTER 3

METHODOLOGY

3.1 Research Design

This is a non-experimented cross-sectional study. A self-administered questionnaire was used to determine the knowledge and practice of first aid on burns among parents in Hospital Universiti Sains Malaysia (USM).

3.2 Population and Setting

The population of study were parents who attended paediatric clinic and adult at emergency departments, and routine antenatal clinics appointments in Hospital USM.

3.3 Sampling Plan

3.3.1 Sample

The subjects are parents or adult who met the inclusion and exclusion criteria's as follows:

Inclusion criteria

1. Parents who is attending the outpatient clinics and at emergency departments in Hospital USM.
2. Able to understand Bahasa Malaysia.
3. Willing to participate in this study and consented.

Exclusion criteria

1. Have difficulty in understanding the questionnaire in Bahasa Malaysia.
2. Unwilling to participate in this study.

3.3.2 Sampling Method

Sample of the study was selected using simple random sampling in order to choose the subjects randomly. Based on this sampling method, parents that attend to emergency department, paediatric clinic and antenatal clinic was choose randomly by following the inclusion and exclusion criteria. Using this sampling method design, the bias was avoided during the time when the study was conducted.

3.3.3 Sample size

The sample size of parents attending to Hospital USM was take based on previous study (Davies et al., 2013) conducted in May and June 2011 at the University Hospital of Wales in Cardiff that are 106 parents. Approximately about 53 parents in a month and because of three month will be used for data collection, so it's about 159 parents. By using the Raosoft sample size calculation software to calculate the sample size and to ensure the accuracy by avoiding error during representative and parameters of the sample.

To determine the sample size, an analysis is conduct by using Raosoft with a confidence level 95 % and a margin of error that can be tolerate amount 0.05, thus the recommended sample size for total parents attending paediatric clinic and adult at emergency departments, and routine antenatal clinics appointments in Hospital USM is 113.

Then, the drop out for this study, 10% of calculated sample size is recorded. Therefore the total parents involved for this study was:

$$\begin{aligned} &= 113 \pm \text{drop out of 10\%} \\ &= 113 \pm 11.3 = \underline{\underline{124 \text{ parents}}} \end{aligned}$$

3.4 Variables

In this study, the dependent variable measured was the practice of first aid towards burns among the parents. While, the independent variables was knowledge about first aid on burns and selected socio-demographic factors among the parents.

3.4.1 Variables Measurement

The independent variables was selected based on the demographic data which include age, gender, ethnicity level of education, parent or grandparents, how many children do they have and had their children experience of burns injury before this will be measure according self-report.

Knowledge about first aid of burns was measured using four-tiered ranking (Table 3.1) where they measured as (1) contraindicated, (2) poor, (3) inadequate and (4) adequate.

Table 3.1: Scoring of First Aid Knowledge on Burns

Knowledge score	Suggested first-aid treatment
1- None/ Contraindicated	Would not do anything. Any contraindicated treatment (e.g. oil, butter, ice).
2- Poor	Water for 1 min. generic burn cream/ burn spray only. Any inappropriate treatment with or without cling film (e.g. egg white). Cling film only
3- Inadequate	Water for 10-20 min + inappropriate treatment. Water for <5min+ cling film Water for 5 min Generic burns spray/cream + cling film
4- Adequate	Water for 10-20 min + cling film Water for 5 min+ cling film Water for 10-20 min only Burns shield dressing

Source: 'How Do Parents Know About First Aid of Burns', (Davies et al, 2013)

3.5 Instrumentation

3.5.1 Instrument

A self-administered questionnaire was used in this study. The questionnaire are categorised into three sections as follows:

- 1) **Section 1: Socio-Demographic Data.** This section consists of eight questions including the age, gender, ethnicity, level of education, parent or grandparents, number of children, and had their children experience of burns injury before this.
- 2) **Section 2: Knowledge on First Aid of Burns.** This section involved seven questions. The components of first aid for burns are type of first aid used, duration of using running water on burns injuries and materials used to cover burns injuries. Other questions included source of information or practice on first aid of burns, and did they interesting in learning more about first aid of burns. This will be using questionnaire from the article of 'How do parents know about first aid of burns' by (Davies et al., 2013).
- 3) **Section 3: Practice about First Aid of Burns.** This section involved five open-ended questions. It include whether parents ever had practice the first aid towards burns injury or not and if yes what type of first aid did they using on. After apply the first aid and clean dressing, did they bring the patients to the nearest clinic or hospital to get further treatment.

3.5.2 Translation of the instrument

The instrument used in this study was translated to Malay language from English language, as Malay language was the common language used. By using forward and backward translation, the instrument was translated and adjusted to a new version. First, the instrument was translated into Malay by the Pusat Pengajian Bahasa Literasi dan Terjemahan Universiti Sains Malaysia (USM). Then, the translated version was checked by supervisor and correction carried out.

3.5.3 Validity and Reliability

In order to make sure the subjects are treated ethically, the validity and reliability are important in the data collection instrument. The pilot study was tested to ensure the reliability. The pilot study is important to know that the questionnaire is easy to understand and answer. The pilot was tested using 30 sample of parents or adult who met the inclusion and exclusion criteria at emergency department or at the clinic. Based on the Cronbach alpha, the higher the coefficient the more reliable it is. The Cronbach alpha in this study is 0.63 for both knowledge and practice of first aid on burns.

3.6 Ethical Considerations

Ethical approval was sought from the Research Ethical Committee (Human), Hospital Universiti Sains Malaysia (USM). Permission for collecting data was obtained from Director of Hospital USM, Burn Unit and Emergency. Written consent was obtained from the subjects who are prior to answering the questionnaire that they have agree to participate in the study. Explanation on the purposes of the study was given to the subjects prior to survey. Apart from that, how they are involves and their rights to discontinue from the study are honestly explains to them. Subjects were inform that all 15 the information from the study will be keep confidential, anonymous and will be used for academic purpose only.

3.7 Data Collection Plan

Data collection was done after approval from the Research Ethical Committee (Human), Hospital USM, and permission for data collection was permitted from the Director of Hospital USM, parents or adult were approached. Written consents were sought from subjects who fulfil the inclusion criteria and are willing to take part in the study. After obtaining consents, subjects were brief and given questionnaires to fill up the questionnaire and collected after 15 minutes so that they had adequate time to complete the questionnaire before or after meet the doctor. Data collections were carried out from December 2014 until January 2015 (Figure 3.1).

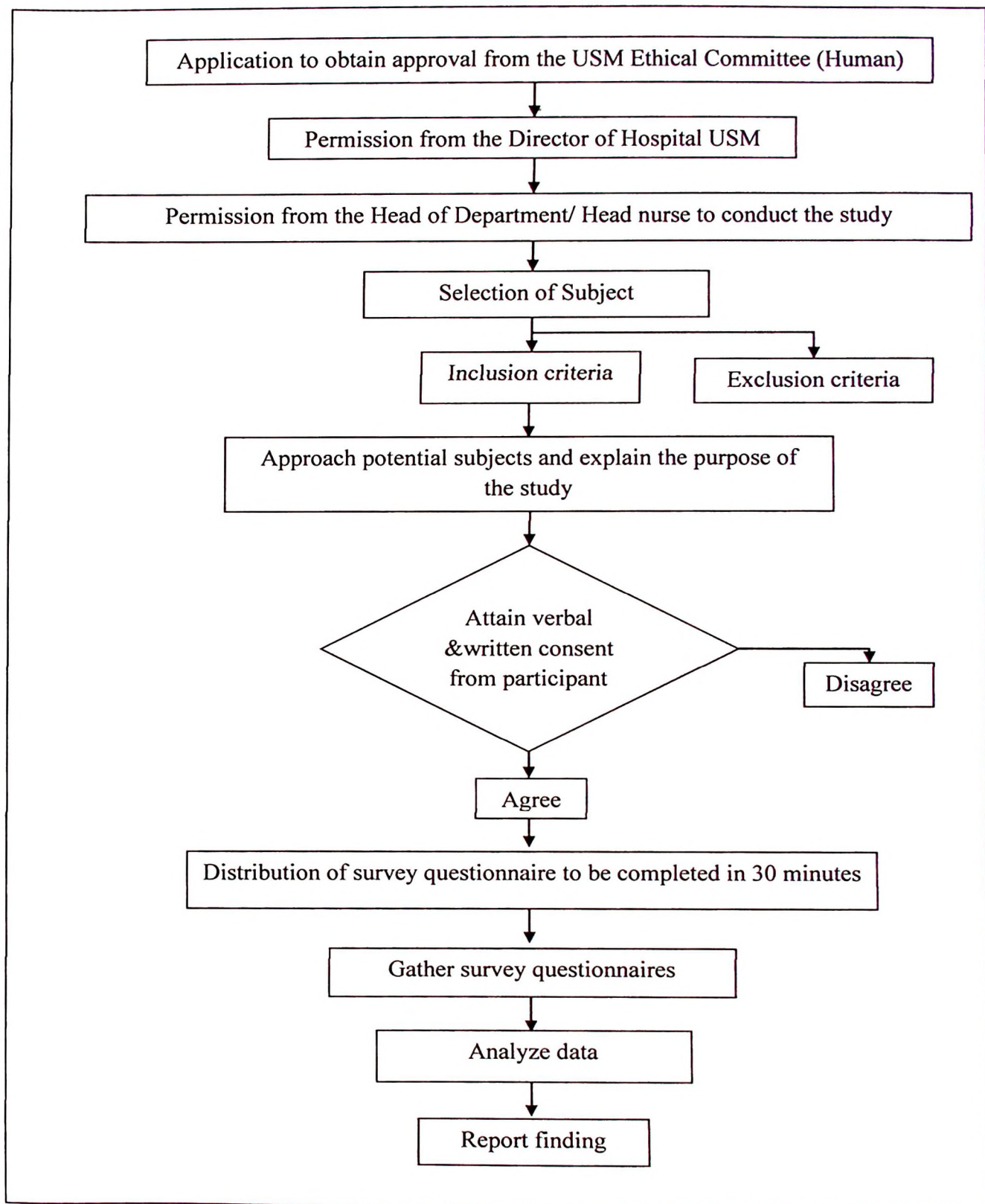


Figure 3.1: Flow Chart of Data Collection

3.8 Data Analysis

The data analysis was performed using Statistical Package for the Social Sciences for windows (SPSS) version 22.0. Descriptive analysis was used to analyse the socio-demographic data in the form of frequency and percentage (%). Inferential statistics which is Pearson Chi-square test was used to analyse the relationship between dependent (practice of first aid towards burns) and independent variables (knowledge of first aid towards burns and selected socio-demographic factors). Statistical results were considered statistically significant for $p\text{-value} < 0.05$.

3.9 Expected Outcome

At the end of this study, the study can achieve the objectives such as identify the score of knowledge and practice of first aid towards burn among the parents in Hospital USM. In addition, to determine the association between the knowledge and practice towards first aid of burns among the parents in Hospital Universiti Sains Malaysia and also to determine the association between the practice of first aid of burns with the selected demographic data (age, gender and level of education) in Hospital USM. Then, the result of this study will be helped the parents to prevent misperceptions regarding the first aid for burns especially at home. Other than that, can determine on which population that received the right knowledge about first aid for burns and whether they practice it on the right way or not. Here, as a health care professional should aware and maybe should do or provide a class or home fire safety programme about the first aid of burns

CHAPTER 4

DATA ANALYSIS AND RESULT

4.1 Introduction

This descriptive study was designed to identify the knowledge and practices of first aid on burns among parents in Hospital USM. It was conducted at outpatient's clinics and accident and emergency department, Hospital USM. Data collection was carried out by distributing questionnaire within two month from February 2015 to March 2015.

This study involved 124 parents who attended at paediatric clinic, emergency departments, and routine antenatal clinics appointments in Hospital USM. Overall, 124 parents who met the criteria were selected as subjects for this study and they were given questionnaire to answering the questions. The statistical analysis was used for data analysis. Results of the study are presented in fifth sections as follows:

- a) Demographic characteristics of the subjects.
- b) Score of knowledge of first aid on burns.
- c) The association between the knowledge of first aid on burns with the selected demographic data (age, gender and level of education) among parents.
- d) The association between the knowledge of first aid on burns with previous first aid training.
- e) The common practices of first aid on burns among parents.