FACTORS RELATED TO PREVENTIVE BEHAVIOR ON HOME INJURY AMONG MOTHERS WITH CHILDREN UNDER 5 YEARS OLD AT COMMUNES OF HUNG YEN PROVINCE, VIETNAM

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF PRIMARY HEALTH CARE MANAGEMENT FACULTY OF GRADUATE STUDIES MAHIDOL UNIVERSITY 2007

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Thesis
entitled

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Tran Tuan Anh

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FACTORS RELATED TO PREVENTIVE BEHAVIOR ON HOME INJURY AMONG MOTHERS WITH CHILDREN UNDER 5 YEARS OLD AT COMMUNES OF HUNG YEN PROVINCE, VIETNAM

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ABSTRACT

A cross sectional descriptive study aimed to identify factors related to preventive behaviors on home injury among mothers with children under five years old in Tienlu district, Hungyen province, Vietnam. 205 mothers were selected randomly and interviewed by structured questionnaire during January 2007. Statistical descriptive analysis was used and tested by Chi square and Fish Exact tests.

The mothers' ages ranged from 21-45 years. Most had only secondary education, or less, an average income of less than 1,000,000 VND per month, an average, 1 child under five years. 34 percent of mothers reported their children received home injuries within the 3 weeks before the study. 86 percent of these injuries were types of falls.

16.6 percent of mothers had good knowledge and 63.4% had moderate knowledge. 52.7 percent of mothers had positive attitude. 47.3 percent of them had negative attitude. 9.8 percent of them had good preventive behaviors, 73.1 percent fair and 17.1 per cent poor preventive behaviors. There was significant association between the mothers' preventive behaviors with family income ($p = 0.000$), mothers knowledge levels ($p= 0.030$) and radio ($p= 0.027$). Though, there were not found more significantly association other factors, however frequency distribution of proportions suggested to active meaningful. Mothers with low knowledge, negative attitude, disadvantaged on socio demographic conditions were affected to their preventive behaviors on home injury more worst.

The study' recommendation are providing communication to the mothers for their behavior change via mass media and direct communication at commune level.

KEY WORDS: HOME INJURY/ PREVENTIVE BEHAVIOR/ MOTHERS/ CHILDREN UNDER 5

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LIST OF ABBREVIATIONS

DALYs	:	Disability Adjusted Life Years
HI	:	Home injury
IEC	:	Information- Education- Communication
MOH	:	Ministry of Health
TV	:	Television
UNICEF	:	United Nation International Child's Emergency Fund
VND	:	Vietnam Dong
WHO	:	World Health Organization

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CHAPTER 1
INTRODUCTION

1.1 Rational and Justification

Injury is a leading cause of mortality and the most common cause of death among children (1). Every year, 750,000 children die from injury. Another 400 million are seriously hurt. Many injuries lead to permanent disable and brain damage. Injuries are a major cause of death and disability among young children. The most common injuries are falls, burns, drowning and road accidents (2). Injuries commonly occurred in the child's own home (3). The number and type of hazards in the home varied between young children (4 years and less) (4).

It was given example for illustration on the danger of injury. In the European region, 3 to 4 deaths out of 10 that occur in children between the ages of 0 and 4 years are a consequence of injury (5). In addition, injuries kill over 20,000 children aged 1 to 14 every year in the world's wealthiest nations will die from injuries in the next twelve months (6). The incidence and circumstances of nonfatal firearm-related injuries among children and adolescents treated in US, the estimated annual rates of injury (per 100000) were 2.0 (children 0-4 years old) (7). Most of the children who fell were between the ages of 0 and 4, and all were sent directly to the intensive care unit; 4% of the children died. Most window falls occur when children are unsupervised (8). The distribution of injuries was as follows: falls (50.4%), burns (22.8%). Of the 177 falls, 104 (58.8%) involved stairs, 7 (4.0%) involved baby walkers, 14 (7.9%) were from changing tables, and 1 (0.6%) was through an open window; the cause was not specified for 51 (28.8%). Of the 80 burn injuries, 8 were due to exposure to hot tap water (10.0%), 27 to hot liquids or solids (33.7%), 22 to hot surfaces (27.5%) and 2 to dwelling fires (2.5%); the cause was not specified for 21 (26.3%) (9).

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However, most of these injury occurs in low- and middle-income countries. Many of those who survive these injuries suffer life-long disabling health consequences (5). Injury is also a leading cause of death and disability among children in many Asian countries. The research, includes studies from six countries i, e. Bangladesh, China, Indonesia, the Philippines, Thailand and Viet Nam, indicates that child injuries account for as many as half of the roughly 1.4 million child deaths recorded each year in East Asia and the Pacific (10). Other significant dangers in the countries studied are burns and scalding, which kill more children than dengue fever, as well as falls, which are responsible for more child deaths than tuberculosis (10). The consequence of the happened injury among the group may cause the burden of disable and healthy lost for them and family and society. Most pediatric injuries are of modest severity yet many can affect behavioral and emotional development. Even minor injuries are stressful and treatment of these injuries imposes a financial burden on society (11). There are the different linking with other factors like low education parents, poor family, divorced parents (12).

The reasons leading to the home injury are included the house condition such as the house floor is too smooth, unsafe balcony, untidy objects in houses, electric equipment and hot or burn objects and other issues like chemicals, spoiled food, wells or water containers without covers, animals, specially dogs without muzzles, sharp objects etc. Some factors, like the number of children of the family or family economic conditions are related to an increasing rate of home injury.

The role of caregivers, specially the role of mother, is important to be sure that their children under five years old are safer from home injury. A child needs his or her mother to take care his or her until he or she grows up. During the childhood, the role of mother is very important for children. So, the role of mother affects to her child in all areas, including health. Injury among children is one of the most serious factors affecting to childhood health. Mothers have a primary role in promoting child health through preventive behaviors at home to protect their children from home injury. The behaviors of seeking health care or taking care of their children are similar. Mothers

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are not providing this care alone, but also need or require support from others for their practices.

Another element creating risk of injury among children is the children's own physical and mental development characteristic are different age groups, such as the age group under five years old. Children who are less than five years begin to walk, run, climb on the furniture or stairs and open the door, windows, play with objects, chemical, and other equipments etc. All of their activities are potentially dangerous (13).

Injury has become the leading cause of death in children in Viet Nam. The figures show that almost 75 percent of death among children was cause by injury. The fatal child injury rate was 83.2/100.000 children. In Vietnam over 27,000 children died of injury in 2001. This was 74 children each day, or one child death from injury every twenty minutes (14). One study on home injury in Hung Yen, Vietnam showed that home injury in the district was ranked second among injury causes and home injury trend was increasing. In 2004 alone, the number of home injury causes was 23 percent and result in death in 20 percent of those cases. In only the first six months of 2006, the rate is 27,9 percent and the proportion of death is same number in 2004 (15). Among injury cases, the number of cases related to home injury was 30-40 percent, the number of injury in school was 10 percent and in sport activities was 15-20 percent (16).

In Vietnam, specially in the rural area, most children under 5 years old stay with family members like parents, grandparents, their sisters or brothers. Injury is happening at households due to various causes. The types of injury are different as mentioned above. However, there are some reasons or factors related to the occurrence of injury. Some study show that the reasons of occurrence of injury are lack of awareness and careless of adult while taking care their children. Some children under five years old are not able to avoid the injury by themselves because they are not yet physically mature. Injury may cause a burden of disability and loss

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for them, the family and society. Other factors like low parent education, a poor family, divorced parents (12) can be linked.

A study in 2001 in Vietnam showed that there is 7.4 percent number of mothers with children under five years old said that home injury occurred with their children over two months prior to when the study was conducted. Prevention practices on home injury were noted, such as practices of taking care of their children carefully (44.1%), childproofing electric plugs, not allowing their children touch matches, cigarettes, clothes irons (11.7%), or play with sharp objects (10.5%) (17). Tien Lu district is one of 10 districts in Hung Yen province, Vietnam. The district is similar socio economic characteristics to eight other districts of Hung Yen. The home injury pattern among children under five years old in the district may be the same pattern of other districts in the province and other rural areas of Vietnam.

A study on the injury patterns in children under 18 years old in 6 provinces, in Vietnam showed that there were four leading ratio of nonfatal child injury in children under one year old The ratio for falls was highest (450.5/100,000) and then burn ratio was second highest (150.2/100,000). In children one to four years old falls ratio was still highest (1945.9/100,000), then (304/100.000) cuts by sharp object, (820.9/100,000) animal bites, and (912.1/100,000) burn (18). Injury occurs at home injury was accounted for half (52.3%), followed by accidents along commune roads (20%) and injury happen in school (9.4%). The highest ratio of injury happened while children were playing and second highest ratio while children went on the road (18). The Vietnam Multi-center Injury Survey (VMIS) also indicated quite similar data for children under one years old and children one to four years old: the rate of falls was highest (256.2/100,000 and 1469.2/100,000, respectively), followed by animal bites (241.3/100,000 and 983,3/100,000 respectively), sharp objects (22.1/100,000 and 407.4/100,000, respectively), and burn (389.2/100,000 and 504.2/100,000 respectively) (14). So home injury among children under five years of age is a very common threat to children’s health over diseases and other risks. Some studies indicated that there were four leading nonfatal child injury types namely falls, cuts by sharp objects, animal bites and burns.

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In Vietnam nowadays, home injury is a public health issue of concern to health professionals, the community and governments. Based on the studies and evidence, effective strategies and policies were developed to limit the harm of the injury included home injury in children under five years old. It was admitted that in Vietnam, the studies regarding to preventive behaviors on home injury for children under five years old were still rare. The previous research therefore provides as scope for exploring more home injury patterns that is focused on the four leading injury patterns occurring among children under five years old. This study therefore addresses factors related to the preventive behavior on home injury among mothers with children under five years old in communes of Hung Yen province, Vietnam. It was designed and conducted data collection two communes in Vietnam. It can then be conducted in a wider population by other relevant agencies. It was hoped that the inferences draw from this study will enable behavioral and attitudinal campaigns to augment the efforts already being done in order cut down the number of home injuries in this target group. The impact on health and losses sustained by the national economy might be mitigate by addressing the major determinants of home injury.

1.2 Research question (s)

1) What are the preventive behaviors on home injury prevention among mothers with children under five years old in communes in Hung Yen province, Vietnam?

2) What are the factors related to the preventive behavior on home injury prevention among mothers with children under five years old in communes, in Hung Yen province, Vietnam?

1.3 Research objectives

1.3.1 General objective

To describe factors related to preventive behavior on home injury among mothers with children under five years in communes in Hung Yen province, Vietnam.

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1.3.2 Specific objective

1) To describe preventive behavior on home injury prevention among mothers with children under five years old with respect to the socio-demographic characteristics, knowledge, attitude, cues to action.

2) To describe knowledge and attitude on home injury among mothers with children under five years old.

3) To describe the socio-demographic characteristic variables of the mothers with children under five years old.

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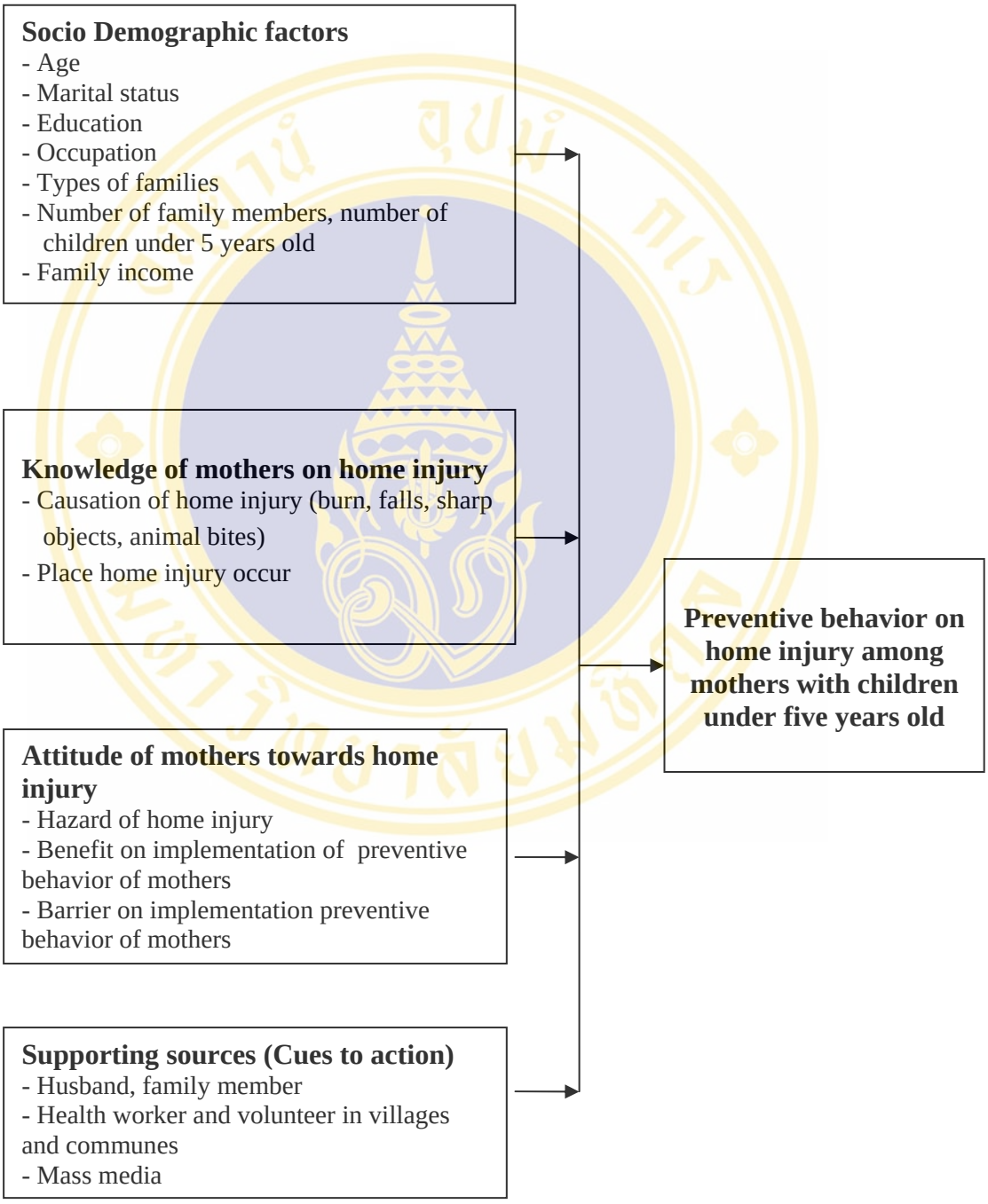
1.4 Conceptual Framework

Independent variables **Dependent variable**



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1.5 Operational definition of variables

1.5.1 Definitions related to this study

Home injury was defined in the study as a health incident caused to children under five years old while in their households and the different gradations of severity of injury. The types of injury mentioned in this study included:

Falls: Referred to children who fall on floor, down stairs and steps, off balcony, out of windows, chairs or bed at home.

Cut or puncture wound: caused by sharp and blunt objects, such as scissors, knife, or wood in home.

Burn: referred to any injuries caused by hot water (hot pots, thermos, hot food) and hot objects (iron, stoves, fire of match, fighter) at home.

Animal bites: animals attack children by biting or scratching like dogs or cats and caused wounds or cuts for children.

Home/house: The place where children live with their family. This definition of home concurs with the International Statistical Classification of Diseases and Relate Health Problems (ICD-10) (19).

1.5.2 Dependent variable

Preventive behavior on home injury among mothers with children under five years.

Preventive health behavior is any activity undertaken by an individual for the purpose of preventing or detecting illness in an asymptomatic state. Self-protective behavior is known as cautious behavior (20).

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In this study, preventive behaviors of mothers with children under five years old is accepted as their practices on home injury for their children. Preventive behavior is defined as mothers knowledge and actions to apply preventive practices on home injury. Preventive practices included:

To discuss with family members about home injury hazards, home injury preventive measures and teaching children how to avoid home injury.

To prevent children from falling, the steps of the veranda and handrails on stairs should be made low enough for children. Safety gates should be installed at the top and bottom of stairs. Hazards on floors should be kept clean by promptly wiping up grease, water and other spills. Windows should have bars or locked in some fashion.

To prevent cuts and wounds by sharp objects among children knives and other sharp objects should be stored out of the reach of children and promptly stores after use. Children should wear shoes. Machines and tools should be covered or enclosed to prevent children from touching them without parental guidance. Other sharp objects should be moved away from the reach of children.

To prevent animal bites, children should be taught not to tease dogs, cats or other animals. Dogs should be kept chained or muzzled.

To prevent burns a thermos should be kept in lunch box. Hot objects or foods should be placed far from a children's reach. A fence can prevent children from going into kitchen or touching the fire. In all of these forms or prevention, careful supervision of children can prevent home injury.

1.5.3 Knowledge

Knowledge means the understanding of mothers on home injury of children under five years old, including types of injury, causation of home injury (burn, falls, sharp objects, animal bites) and location where home injuries occur.

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1.5.4 Attitude

Attitude is the general predisposition to respond positively or negatively towards an object or a person. In other words, attitude entails opinions. There are differing degrees of positive and negative opinions, as well as a neutral point where there is no affective reaction at all. Attitude on risk of home injury may occur among children under five years old.

Attitude on home injury hazard: mothers' cognition of risk and danger to their child health in term of home injury.

Attitude of benefit here is applied to respective aggregation of all gains and cost benefit of actually engaging in the preventive behavior.

Attitude of barrier: Contrary to the attitude of barrier here it means, the burden and lack of profit received by one engaging in the prevention behavior.

1.5.5 Socio-demographic characteristics

Children under five years old

Refer to a child from zero day of age to before the day of child fifth birthday (one year equal 365 days).

Mothers with children under five years old

Refer to mothers who have got one or more children under five years old and are living with them. These mothers have a role in the care of children during the study is conducted.

Education

It refers to the level of educational attainment of mother, including: No education, primary school, secondary school, vocational school, university, other

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Marital status

Refer to the mother's married status: single, married, widowed, separated/divorced.

Age

Refer to mothers' date of birth

Occupation

What kind of jobs a mother is involved to contribute to family income.

Family type (composition): refers the functional type of the mother's family, categorized as (i) Parents and child/children and (ii) Grandparents/ others, parents and child/children.

Total of family's children and number of children under five years old

Refer to a number of family members living in the same house.

Family income

It was defined as the monthly total income of all family's members.

Supporting condition (cues to action)

Sources of information

In this study, the mothers have been receiving information regarding injury prevention and control from health staff, volunteers, newspapers, television, radio, health magazines, posters, leaflets, brochures, friends, neighbors, extended family members.

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The person who effect to mother to practice preventive behavior

This part including, media information, personal influence and reminder for preventive behavior of mothers on home injury and may come from husbands, caregivers, health staff in villages and communes.

1.6 Benefit of the research

This study is expected to contribute to understanding mother's preventive behavior on home injury among children under five years old in Vietnam. The study explores specific behaviors and provides a basis for further studies with expended dimensions at regional and national study levels.

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CHAPTER 2
LITERATURE REVIEW

A review of literature and previous studies on both home injury and preventive behavior of home injury, includes:

2.1 General information on home injury

2.2 General information on home injury in Viet Nam

2.3 Factors related to accidents

- Demographic characteristics
- Knowledge about home injury and attitude of mother about home injury
- Supporting condition (cues to action)
- Preventive behavior on home injury

2.4 Theory related to the study

2.1 General information on home injury

Injury is a leading cause of mortality and the most common cause of death among children (1). An injury is defined as "a bodily lesion at the organic level, resulting from acute exposure to energy (mechanical, thermal, electrical, chemical or radiant) in amounts that exceed the threshold of physiological tolerance. In some cases (e.g. drowning, strangulation, freezing), the injury results from an insufficiency of a vital element" (21). An estimated 5 million people worldwide died from injuries in 2000 and a mortality rate of 83.7 per 100 000 population. Injuries accounted for 9% of the world's deaths in 2000 and 12% of the world's burden of disease. The burden of disease related to injuries is expected to rise dramatically by the year 2020 (22).

More than 90% of the world's deaths from injuries occur in low- and middle-income countries. The low- and middle-income countries of Europe have the highest injury mortality rates. The South-East Asia and Western Pacific Regions account for the highest number of injury deaths worldwide (22).

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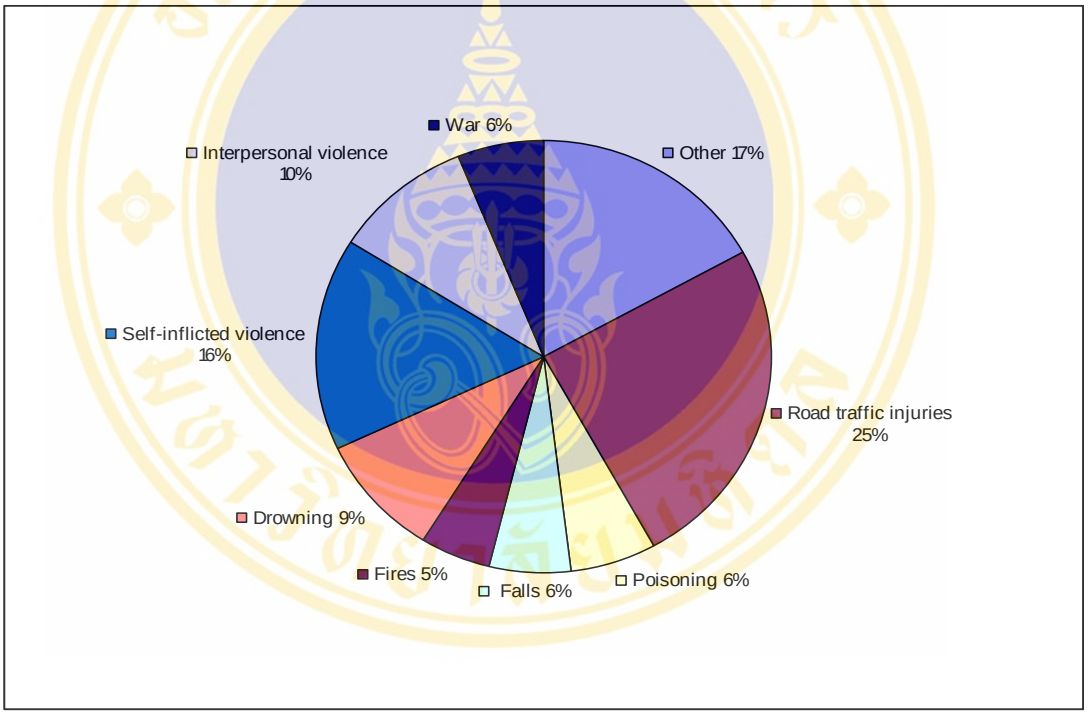
Globally, injury mortality among men is twice that among women. In some regions, however, mortality rates for suicide and burns in females are as high or even higher than in males. Males in Africa and Europe have the highest injury-related mortality rates. Young people between the ages of 15 and 44 years account for almost 50% of the world's injury-related mortality. Mortality from road traffic injuries and interpersonal violence in males is almost 3 times higher than that in females. Children under 5 years of age account for approximately 25% of drowning deaths and a little over 15% of fire-related deaths worldwide (22).



Source: WHO, 2000

Figure 1 Distribution of global injury mortality by cause, 2000

The figure 1 showed that the fires and falls were accounted low proportion, however, these causes become important for group children under five years old and among types of home injury.

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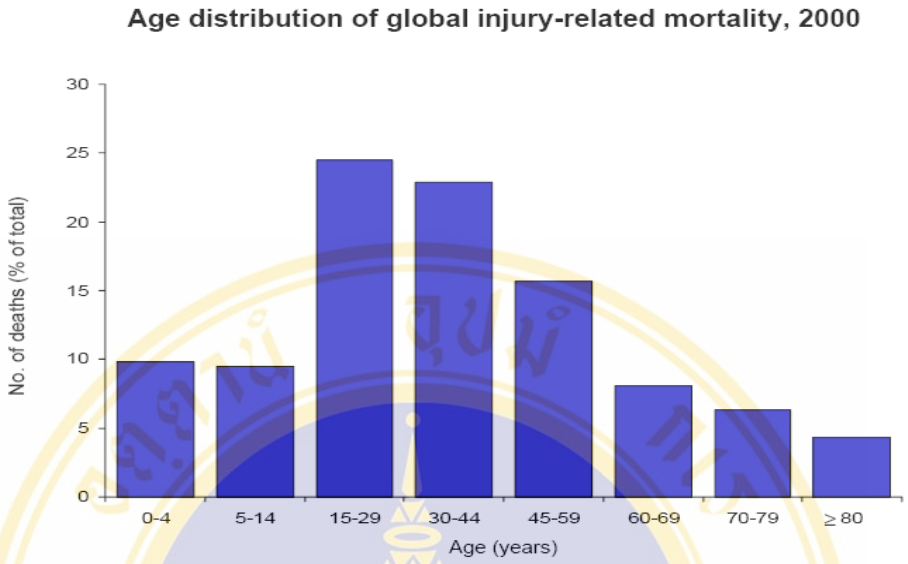
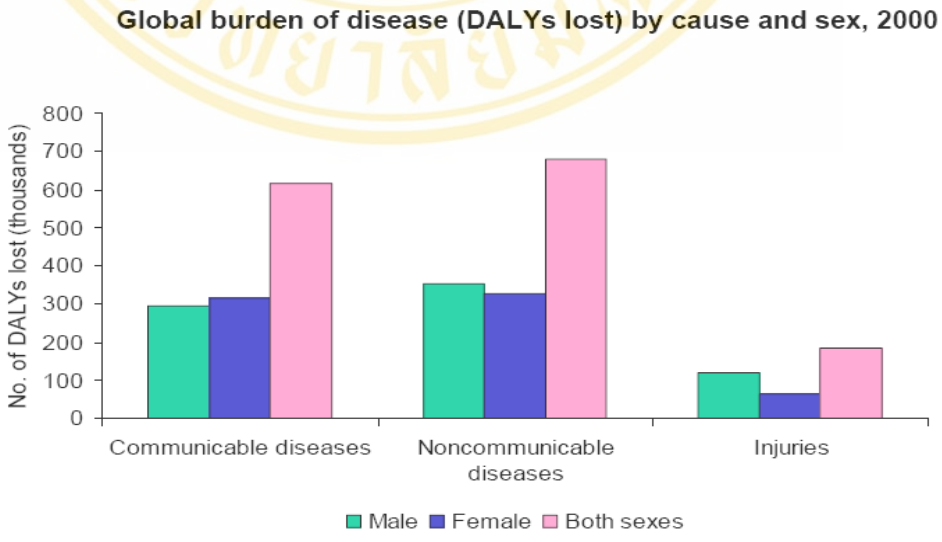


Source: WHO, 2000

Figure 2 Age distribution of global injury-related mortality, 2000

The 0-4 age group, however, was not highest to compare with other groups, but still higher than groups 5-14 or 60- more than 80 years old.



Source: WHO, 2000

Figure 3 Global burden of disease (DALYs lost) by cause and sex, 2000

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Injuries account for 12% of the total burden of disease worldwide. Males account for twice the number of the Disability Adjusted Life Year (DALYs) lost due to injury compared with females.

The distribution of injuries was as follows: falls (50.4%), burns (22.8%), poisonings (16.0%) and chokings (10.8%). Of the 177 falls, 104 (58.8%) involved stairs, 7 (4.0%) involved baby walkers, 14 (7.9%) were from changing tables, and 1 (0.6%) was through an open window; the cause was not specified for 51 (28.8%) (9). Of the 80 burn injuries, 8 were due to exposure to hot tap water (10.0%), 27 to hot liquids or solids (33.7%), 22 to hot surfaces (27.5%) and 2 to dwelling fires (2.5%); the cause was not specified for 21 (26.3%) (9).

Regards fire-related burns, Globally, fire-related burns were responsible for 238 000 deaths in 2000. More than 95% of fatal fire-related burns occurred in low- and middle-income countries. Fire-related burn mortality rates (per 100 000 population) by 0-4 age group and sex in 2000 is both sex (6.6), male (7.6), female (5.7) (22).

Fall-related deaths and non-fatal injuries, worldwide, an estimated 283 000 people died due to falls in 2000. A quarter of all fatal falls occurred in the high-income countries. Fall-related mortality rates (per 100 000 population) by 0-4 age group and sex in 2000 is both sex (2.8), male (2.9), female (2.8) (22). Falls were responsible for 54% of all injuries (3141/5876) and of these, 3% (94/3141) were admitted (23). Head injuries are common among the youngest children because they do not have the ability to shield themselves during a fall. As children spend more time outside of the home, injury prevention shifts to child-centered strategies (24).

Children under one year old have the highest rate of home injury death, compared to all other childhood age groups, with a rate of 12.19 deaths per 100,000 children less than a year old. Children between 1 and 4 have the second highest rate of home injury death per year (11).

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Among the group children younger than 15, deaths an average of 2,096 children younger than 15 die each year in the United States as a result of a home injury (11). The home is the site of approximately 20% of all injury death. The top five leading causes of unintentional home injury death are falls, poisoning, fire/burn, choking/suffocation, and drowning; together these causes account for 90% of all unintentional home injury deaths. Yet the majority of unintentional home injuries do not result in death. For every home injury death there are approximately 650 nonfatal injuries. Children under age 5 and adults over age 70 are the highest risk groups for home injury, both fatal and nonfatal (25).

Injury is a leading cause of death and disability among children in many Asian countries. The research, includes studies from six countries, Bangladesh, China, Indonesia, the Philippines, Thailand and Viet Nam, indicates that child injuries account for as many as half of the roughly 1.4 million child deaths recorded each year in East Asia and the Pacific. Other significant dangers in the countries studied are burns and scalding, which kill more children than dengue fever, as well as falls, which are responsible for more child deaths than tuberculosis 10.

Children between the ages of 1-4 had the highest proportion of unintentional nonfatal home injury, compared with all other childhood age groups. The 0-4 age groups are suffered some types of home injury like falls, chocking, burn, cutting, striking more than other types. When the children become older, they have more different and complicated activities, so they normally get other types of injury in their life (25).

In the United States, there is a dog bite epidemic. There are almost 5 million victims annually about 2% of the entire population. 800,000 need medical attention. 1,000 per day need treatment in hospital emergency rooms. Between 15 and 20 die per year. Most of the victims who receive medical attention are children, half of whom are bitten in the face. Dog bite losses exceed $1 billion per year, with over $300 million paid by insurance (26).

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Children are the most frequent targets, Studies of dog bite injuries have reported the evident like The median age of patients bitten was 15 years, with children, especially boys aged 5 to 9 years, having the highest incidence rate. The odds that a bite victim will be a child are 3.2 to 1. Children seen in emergency departments were more likely than older persons to be bitten on the face, neck, and head. 77% of injuries to children under 10 years old are facial. Severe injuries occur almost exclusively in children less than 10 years of age. The majority of dog attacks (61%) happen at home or in a familiar place. The vast majority of biting dogs (77%) belong to the victim's family or a friend. When a child less than 4 years old is the victim, the family dog was the attacker half the time (47%), and the attack almost always happened in the family home (90%). Dog bites rank second among other common causes of emergency-room injuries (26).

According to this study the annual number of deaths worldwide caused by rabies is estimated to be 55 000, mostly in rural areas of Africa and Asia. An estimated 10 million people receive post-exposure treatments each year after being exposed to rabies-suspect animals. Where data is available, there is consistent evidence that between 30 - 60% of the victims of dog bites in canine rabies endemic areas are children under 15 years of age. The majority of these children may not be treated because their exposures go unreported to parents or health officials. Prevention of human rabies must be a community effort involving both veterinary and public health (27).

Economic effectiveness by home injury

Injuries create huge human, financial and other costs to society. Every day in the WHO European Region, injuries kill over 2000 people, put 60 000 in hospital and necessitate outpatient emergency treatment for 600 000 (14). In America, between 1996 and 2000, an average of nearly 21 million medical visits were made each year due to home injuries (25).

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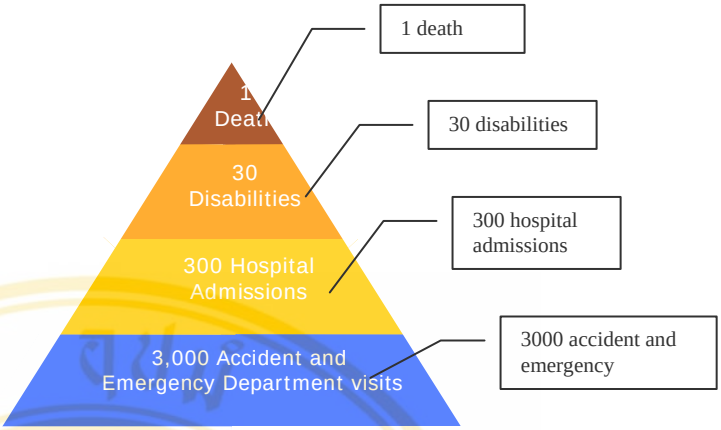

Sources: The State of Home Safety in America, Facts About Unintentional Injuries in the Home TM, Second Edition, 2004 (25).

Figure 4 A mode on injury with required emergency visit

Falls have a significant economic impact on the province, including costs to individuals and their families, workplaces, the health system, as well as community and social services. In comparison, annual treatment costs related to falls were $31 million for children and $28 million for youth, with direct costs being $16 million and $13 million, respectively (28).

2.2 General information on home injury situation in Vietnam

Injury prevelance in Viet Nam

Injury has become the leading cause of death in children in Viet Nam. The figure shows that almost 75% of death in children was cause by injury. The fatal child injury rate was 83.2/100.000 children. This means that almost one out of every thousand children in Vietnam died of injury in the preceding year and that over 27,000 children died of injury in 2001. This was 74 children each day, or one child dying every twenty minutes from injury (14).

In Viet Nam, for example, drowning killed nearly six times as many children as communicable diseases. If injury were prevented among Vietnamese infants and

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children, the under-five mortality rate would fall by almost 40 percent (10). However, currently injury has been becoming an important cause of child morbidity and mortality in Vietnam. Injury was the most common cause of child mortality in Vietnam. Mortality due to injuries among children in Vietnam accounted for 75%; while the mortality rate due to infectious diseases only accounted for 12 % and due to chronic diseases accounted for 13%. The mortality rate due to injury in children was 82.3/100,000. This means that for every 1000 children, there was nearly one child died due to injury per year (14). The highest injury rate was seen in the age group 1 – 4 (5,625/100,000). The lowest injury rate was seen in the age group <1. Burns and fall were the most common causes of injury among children under 5 years of age (29). Except age group under 1 year of age, injury due to animal attack had a high rate in all other age groups. According to the VMIS, there were total of 2,533 child injuries that either required medical attention or caused the child to miss at least one day of work or school (14).

Table 1 Overall nonfatal child injury by cause and age/100,000

Age group / **Causes**	**<1**	**1-4**	**5-9**	**10-14**	**15-19**	**<20**
Fall	265.2 *5*	1469.2 *115*	1591.1 *201*	1416.4 *215*	1057.7 *159*	1322.1 *695*
Animal bite	241.3 *5*	983.3 *77*	1464 *185*	1396.9 *212*	681.1 *102*	1105.2 *581*
Road traffic	69.3 *1*	722.7 *57*	907.3 *115*	688.3 *105*	1307.4 *196*	900.2 *473*
Sharp object	22.1 *0*	407.4 *32*	558.8 *71*	836.9 *127*	989.1 *148*	719.9 *378*
Burn	398.2 *8*	504.2 *40*	175.1 *22*	166.2 *25*	74.4 *11*	201 *106*
Poisoning	242.4 *5*	148.8 *12*	265 *33*	114.8 *17*	141.1 *21*	168.1 *88*

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Table 1 Overall nonfatal child injury by cause and age/100,000 (cont.)

Age group / Causes	<1	1-4	5-9	10-14	15-19	<20
Falling objects	56.9 *1*	180.1 *14*	123 *16*	155.7 *24*	253.7 *38*	175.9 *92*
Machine	00 *0*	30.7 *2*	67.2 *11*	94.3 *14*	230.7 *35*	118.6 *62*
Drowning	0.0 *0*	106.8 *8*	74.0 *9*	8.0 *1*	6.2 *1*	37.8 *20*
Electric shock	0.0 *0*	100.5 *8*	17.5 *2*	40.3 *6*	16.0 *2*	35.4 *19*
Other	0.0 *0*	0.0 *0*	73.4 *9*	27.6 *4*	28.9 *4*	33.8 *18*

Actual number of cases in italics. Source: VMIS, 2003((14)

The table shows, in group of children under 1 year old, the rate of injury are main four causation are falls, animal bite, burn and poisoning. However, in group age 1-4 the rate of above mentioned 4 causations increase dramatically, specially road traffic, sharp objects and burn.

Distribution of severity levels

The distribution of injury severity by age groups in term of the level of severity was identified by categorized the victim according to some pre-defined criteria based on the use of health services, time lost from work or school because of injury, number of hospitalization day, the appearance of disability or death. In general, there is no substantial different in severity level among age groups.

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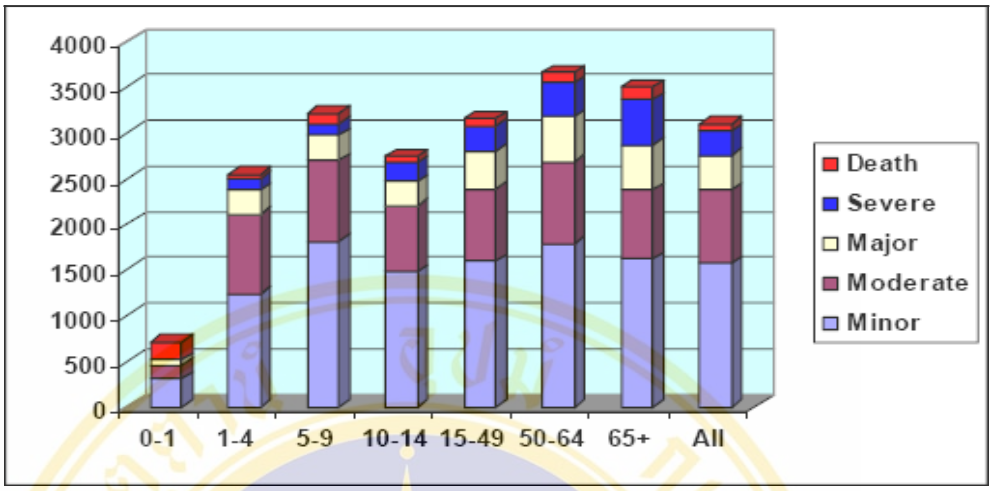

Source: VMIS 2003 (14)

Figure 5 Distribution of severity levels

There were 57% of the injury cases got first aid treatment, and more than 70% of these were treated by their family members and 80% of the interviewees suggested that the first aid practices were effective. 70% of the injury cases were treated at district or commune health care settings. 55% of the mortality cases were due to drowning, in most of the cases the children were death before being discovered by adults. 70% of the injury mortality cases occurred at the scene of accidents, 12.5% occurred at health care settings, another 12.5% occurred at homes and only 5% of the cases occurred on the ways to health care settings. The study did not find any relationship between the nature of the injury as well as the first aid and emergency practices and injury mortality rate (29).

Place of injury happened

As on study showed that major injury happened at home is accounted 33,3% or playing yards surround of houses is accounted 32,9% (12). The result is quite similar to other study indicated that home injury was accounted 30-40%, in school is 10%, sport activities is 15-20% (16).

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Another study on Using Safe Devices at Home was conducted in 3 communes in 3 regions of Vietnam showed that traffic accidents accounted 90,5% of injury causes among children. 60,3% of causes is burn, 59,3% falls, 36,7% electric shock, 60,3% animal bites, 61,2% sharp objects, 83,3% poisons (30).

Table 2 Place of injury happened

No	Place where injury can happen	Inner areas of HP city	Suburb area	Island area	Total	Percentage (%)
1	In house	171	438	44	653	33,30
2	Nearby the house	175	428	43	646	32,94
3	School	52	83	15	150	7,65
4	Others in community	104	361	47	512	26,11

The table shows that the percentage of home injury happened among children in family, included at home and nearby house (66.24%) is higher than other places injury happened (31).

Burden of injury

Home injury has impacts on physical and metal health of the preschool children. Physical impacts range from tissue injury, wound, disability, and death. The burden of injury to population is very high, if we could prevent all injury death we would increase the life expectancy at birth of Vietnamese population by 7 years. If injury has prevented among infant and small children we would reduce under 5 mortality rate (U5MR) by 40% (48.6 to 29.7 per 1000) meanwhile eliminate infectious diseases would reduce on 15% of U5MR Of course, we could not eliminate all injuries or infectious diseases in the community and the estimations just help us only in visualize the benefit of child injury prevention program for Vietnamese children (14). The injured children need to treatment in health facilities also required assistances from other family's members in doing personal activities such as having meals, baths,

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wearing clothes and in performing daily activities such as going to school, to work etc. with a quite large number of days (29).

Policy towards injury in Vietnam

The National Policy on Injury Prevention 2002-2010 in Vietnam, in December 2001. Main responsibility for implementing the policy was given to the Ministry of Health. Subsequently the national program on accident and injury prevention 2003-2005 was developed including several sectoral action plans. Priority areas are (1) transportation: preventing road injury especially accidents on high speed roads; (2) work environment: preventing injuries occurring through construction work, mineral exploitation, electricity use; (3) schools: training to improve knowledge and awareness of injury prevention; (4) in the home, community and for children: preventing drowning, burns, falls, poisoning and other injuries. Mechanisms to coordinate national and international activities related to accident and injury prevention were established (29).

There should be appropriate interventions programs according to the injury patterns. In the intervention programs, special attention should be paid on the most common causes of injury including: fall, traffic accidents, animal bites (attack), cuts by sharp objects, burns and drowning. There were specific injury types in each age group. Therefore, the intervention programs should take this in to account. Attention should be paid on burns and fall in the age group under 5 years of age. Child injury mostly occurred at home, at school and on inter-commune/inter-village roads. Therefore, the quality and the effectiveness of the safe home and safe school programs should be improved. Adults should pay more careful attention on their children. Improve the capacity, the first aid and emergency equipment for the local health care settings. Moreover, adequate attention should be paid on the family's medicine boxes as well as providing basic first aid knowledge for the people. Study on other injury issues and health economic related to injury (29).

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2.3 Factors related to home injury in children under 5 years old group

Reasons and causation of home injury

The reasons leading to the home injury are house condition (house floor is too smooth, unsafe balcony, untidy objects in houses, electric equipment and hot or burn objects and other issues like chemicals, spoiled food, wells or water containers without covers, animals without muzzle, sharp objects etc). Even, some factors like number of children of the family, family economic condition are affecting to increasing rate of home injury at this location.

Access to hazards, conceptually, the most effective way of preventing an injury to a child is to keep him/her separated from the hazard in question. A child will not fall down stairs if there is a gate in place to prevent this access; they will not be burned if hot objects are inaccessible; a locked cabinet for drugs and noxious household chemicals will reduce ingestion risk. As infants' dexterity improves and they master grasping and releasing, anything within reach is a potential ingestion or choking hazard. Until the curious toddler learns what is unsafe to consume, access to visually attractive substances such as adult medications must be restricted. Animated play amongst toddlers and pre-schoolers in a physical space that has many hard edges and sharp corners is likely to result in injury. Caregivers need to adjust play areas accordingly and keep them free of known hazards (23). The role of caregivers, specially the role of mother is key important who be sure that their children under 5 years old is become safer from home injury.

The environmental factors leading to injury may also be associated with social aspects, such as family stress and critical life events (e.g. hospitalization or chronic disease of a parent, or change of residence). The environmental factors leading to injuries are often associated with other environmental health risks. For example, home and school construction and furnishing materials can lead to unintentional injuries, and poisoning may result from exposure to chemicals unsafely used or stored. Intentional injuries resulting from child maltreatment are associated with physical and

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cognitive deficits in the abused infants, poor parenting skills, marital conflict, and lack of social support systems for families.

There is a range of social, economic and structural factors contributing to inequity in the burden of childhood injuries, including age, gender, socio-economic status and the urban/rural divide. However, people, included children under 5 years old, living in absolute and or relative poverty are consistently at increased risk through exposure to risk situations. They have less access to preventive measures and the means to alter their exposure to risk. Further, when suffering injuries and disability that require urgent medical care or rehabilitation, they may ill-afford (31).

While acknowledging that children learn to a great extent by exploring their physical environment, restricted access to chemical and physical hazards is needed. Passive safety barriers that are effective when a child is young (31) may lose their potential to prevent injuries as children age (32,33).

Mothers education level and marital status

There are the different relationship between home injury and other factors like low education parents, poor family, divorced parents (12). In Vietnam, education level of parents related to injury suffered cases among children. The table below indicate the relationship between education and child injuries.

Table 3 Education level of parents related to injury suffered cases among children.

Education level related to injury case among children	Father (%)	Mother (%)
Illiterate	36.36	33.33
Primary school	31.24	43.89
Secondary school	29.33	25.10
High school	20.38	21.93

The table indicates that the father and mother those who had education level was (father 36.36%; mother 33.33%) or primary school (father 31.24%; mother: 43.8%) had proportion of their children suffered from injury higher than other groups (12).

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In a study in Hai Duong province, Vietnam showed that there was association between mother's education levels and knowledge on preventive practices on home injury for children (P-value < 0.001) (34). Another factors affecting to the home injury situation among children like married status of parents as showed in the study in Haiphong, Vietnam (12).

Table 4: Married status of parents

Condition	Number of household	Number of household had child injury	Percentage of household had child injury
Parents alive	8030	1653	20.59
Father pass away	68	31	45.59
Mother pass away	34	14	41.18
Separate	23	12	52.17
Divorced	59	25	42.37

In addition, in the households with parent's pass away condition like the father pass away (45.59%), mother pass way (41.18%), parent separate (52.17%) and divorced (42.37%), then the percentages of children suffered from injury was higher than groups (12). In the study of S. Pooltawee found that mothers age under 24 years old and low schooling (< 3 years of elementary school) were statistically significant with a risk of major injury (OR = 2.30, 95% CI 1.5-3.4) (35).

Family income

Both fatal and non-fatal injuries have a direct impact on households' livelihood conditions and broader sustainability (36). Injury risk are higher in children of low income parents (29). Gielen and Crawley found that the children from poor or low income families attendance between the poorest and the most are typically at greater

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injury risks. The overall odd ratio for risk of injury attendance between the poorest and the most affluent social areas are 1.28 (37). A study in Vietnam show that the family income has affected to the rate of home injury among children (12).

Table 5 Economic condition of the family and injury suffered cases among children

Economic condition	Number of household	Number of household having children with injury	Percentage of injury case.
Well-off	2438	332	13,62
Medium	5363	1280	23.87
Poor	413	123	29.78
Total	8214	1735	21.12

The household with poor condition has the percentage of injury case higher than other groups (29.78%). It was found that behavior level and family income has association with P-value = 0.000. In the study in Haiphong, the household with poor condition has the percentage of injury case higher than other groups (12).

In other study in two communes Da Trach and Ham Tu, Hung Yen province in 2005 showed that the proportion of family income higher than 200,000VDN attained the knowledge on injury prevention higher than 27.31 times the family income lower than 200,000 VND with P-value < 0.005 (15).

Numbers of children in the household

Regarding family size, the rank order of children is statistically related to the risk of injury. Reading, et al showed that preschooler who have a larger number of elder siblings have higher rates of moderate and severe injuries than those who have a

smaller number of siblings (37). In the study in Haiphong, Vietnam also showed that number of children in the family is one aspect of home injury (12).

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Table 6 Number of children in the family

Number of children in the family	Number of household	Number of household had child injury	Percentage of household had child injury
1	2147	264	12,3
2	3708	741	19,98
3	13,91	412	29,62
4	702	222	31,62
5	186	64	34,41
> 5	80	32	40,00
Total	8214	1735	21.22

The family groups had one child and two children had lower percentage of children with injury (12.3% and 19.98 % respectively) to compare with family the other groups had three children or more (12).

Knowledge of mothers on home injury

According to one study showed there was 60% respondents said burn is major cause of injury and 56,8% said it happened at home. Regarding to falls, 59,3% said is injury cause, and 46,8% they happened at home. Injury children were caused by sharp objects, 61,2% said is cause of injury and 51,2% the causes may happened at home (38). One study in Vietnam found that proportion of mothers with children under 5 years old, who got information on home injury, was 92,2% ($p< 0,001$). There was association between non getting information and mother's practice was low (34).

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Preventive behaviors on home injury

Prevention of child and adolescent injury can substantially reduce the cost burden on public health systems. Moreover, the cost of many interventions is often much lower than the overall cost of the consequences of injury, which makes injury prevention a particularly cost-effective public health strategy (25). European Region indicates that they can be studied, predicted and prevented. If all countries in the Region equaled those with the best performance, more than two out of three injuries (68%) would be prevented and 500 000 lives would be saved a year (39). Parents are more likely to safety - proof their homes for potential hazards if they believe that these hazards and the various types of injury resulting from them are a threat to young children.

It was admitted that there was the inconsistency between caregiver perceptions and their practices that they have child safety knowledge but they do not practice them. Families with 1 or more children under 3 years of age lacked safety locks to prevent basement doors being opened in 50% of homes and lacked safety gates at stairs in 40% of homes. There were no smoke detectors in 6% of the homes and, where detectors were present, 17% were not functional. As well, 54% of the homes lacked fire extinguishers. The temperature of kitchen tap water was greater than 54°C in 43% of the homes (9).

There was some evidence that children whose families had a fitted stair gate had a lower hospital admission rate (43% lower), and those whose families had a fitted and working smoke alarm had a significantly lower admission rate (45% lower) than those without these practices. In both models, children in families storing sharp objects safely had significantly lower admission rates (55 and 56% in the stair gate and smoke alarm models, respectively) than those in families not storing sharp objects safely. An increase by one in the number of safety practices was associated with a significant reduction (18%) in the hospital admission rate (40). Families whose children had a hospital admission for injury were 1.6 times more likely not to have a smoke alarm, 1.3 times more likely not to have a stair gate and 4.8 times more likely

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not to store sharp objects safely than families whose children did not have an admission. Each of the safety practices performed at least as well as the child poverty index in predicting hospital admission (40).

Regards lack of child supervision, it was admitted that young children are vulnerable to many injury hazards. They have limited ability to recognize danger and to foresee the consequences of their actions. Hence, adults have a responsibility for the protection of children by providing an appropriate level of supervision. Parental supervision is an essential element for the prevention of home injuries to toddlers. Optimal supervision was defined as that which keeps the caregiver "within both sight and reach" of the child. It has three essential dimensions: attention, proximity and continuity. There is also a complex interaction between the child's physical health, social competence and risk-taking behaviour, and approaches to supervision should change with various combinations of these states. Caregivers need to be aware of this and adjust supervision levels accordingly (41,42). For children under 5 years of age, caregivers are effecting to risk of home injury among children. The results shown that the injury rate in children without caregivers (or had caregivers who were not present at the time the children were injured) was 7.5 times higher that that in children with care takers (29).

Supporting condition (cues to action)

The important of social support among family member and caregiver in preventing the children from injury. Informational support is the provision of advice, suggestion, and information that a person use in addressing problem. The study showed that over 95 percents of mothers reported that it is very important for them to comply the wishes of child’s grandparent, child’s father, and family in child rearing. Also, they are very favorable to the attitudes, beliefs, and strong support from others for in-home injury preventive practices (43). Family members in enhancing caregiver roles in preschooler home injury prevention.

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The mothers' knowledge, attitude and preventive behaviors also are effected by mass media and communication approaches. The roles of mass media are important for gain the mothers' knowledge. A study in 8 Vietnam provinces about injury KAP and communication model showed that the proportion of household had television (86.6%), radio (39.2%). However, the proportion of television in mountainous low but the proportion of radio was higher (44).

2.4 Theoretical Model

The Health Belief Model and Home Injury behavior change

The Health Belief Model (HBM) was initially developed in 1950s by a group of social psychologists in the US Public Health Service in an effort to explain the widespread failure of the people to participate in programs to prevention or to detect disease (Hochbaum,1958: Rosenstock, 1960, 1974). Later, the model was extended to apply to people's Reponses to symptoms (Kirscht, 1974) and their behavior in response to diagnosed circularly compliance with medical regimens (Becker, 1974). Over three decades, the model has been one of the most widely used psychosocial approaches to explaining health –related behavior (41,45,46).

Although the model evolved gradually in response to very practical programmatic concerns that will be described later, its basis in psychological theory is provided as an aid to understanding its rationale as well as its strengthens and weaknesses.

Components of the Health Belief Model

Over the years since Hochbaum's survey, many investigations have helped to expand and clarify the model and to extend it beyond screening behaviors to include all preventive actions to illness behaviors and to sick role behavior (see summaries in Becker, 1974; Becker & Maiman, 1980; Janz & Becker, 1984; Kirscht, 1974; Rosenstock, 1974). In general its now believed that individuals will take action if

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they believe that a courese of action available to them would be beneficial in reducing either their susceptibility to or the severity of the condition; and if they believe that the anticipated barriers to (or costs of) taking the action are outweighed by its benefits. Each component of model is described in greater detail below (41,45,46).

Perceived Susceptibility

This dimension refers to one's subjective perception of risk of contracting a health condition. In the case of medically established illness, the dimension has been reformulated to include acceptance of the diagnosis, personal estimates of susceptibility, and susceptibility to illness in general.

Perceived Severity

Feelings concerning the seriousness of contracting an illness or leaving it untreated include evaluations of both medical and clinical consequences (e.g death, disability, and pain) and possible social consequences (such as effect of the conditions on work, family life, and social relations). We have come to label the combination of susceptibility and severity as perceived threat.

Perceived Benefit

While acceptance of personal susceptibility to a condition also believed to be serious (perceived threat) produces a force leading to behavior, the particular course of action that will be taken depends upon beliefs regarding the effectiveness of the various actions taken in reducing the disease threat, termed the perceived benefits of taking health actions. Thus an individual exhibiting an optimal level of beliefs in susceptibility and severity would not be expected to accept any recommended health action unless that action was perceived as potentially efficacious.

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Perceived Barrier

The potential negative aspects of a particular health action, or perceived barriers, may act as implements to undertaking the recommended behavior. The individual engages in cost – benefits analysis where in the they weight the action's effectiveness against perceptions that may be expensive, dangerous (having negative side effects or iatrogenic outcomes), unpleasant (painful, difficult, upsetting), inconvenient, time-consuming and severity provide the energy or force to act and the perception of benefits (less barriers) provide a preferred path of action (Rosenstock, 1974).

Cues to action

In various early formulations of the HBM the concept of clues which trigger action were discussed and may ultimately prove to be important, but they have not been systematically studied.

Other variables

Diverse demographic, socio-psychological, and structural variables may effect the individual's perceptions and thus indirectly influence health – related behavior. Specifically, socio-demographic factors, particularly educational attainment, are believed to have an indirect effect on behavior by influencing the perception of susceptibility, seriousness, benefits, and barriers.

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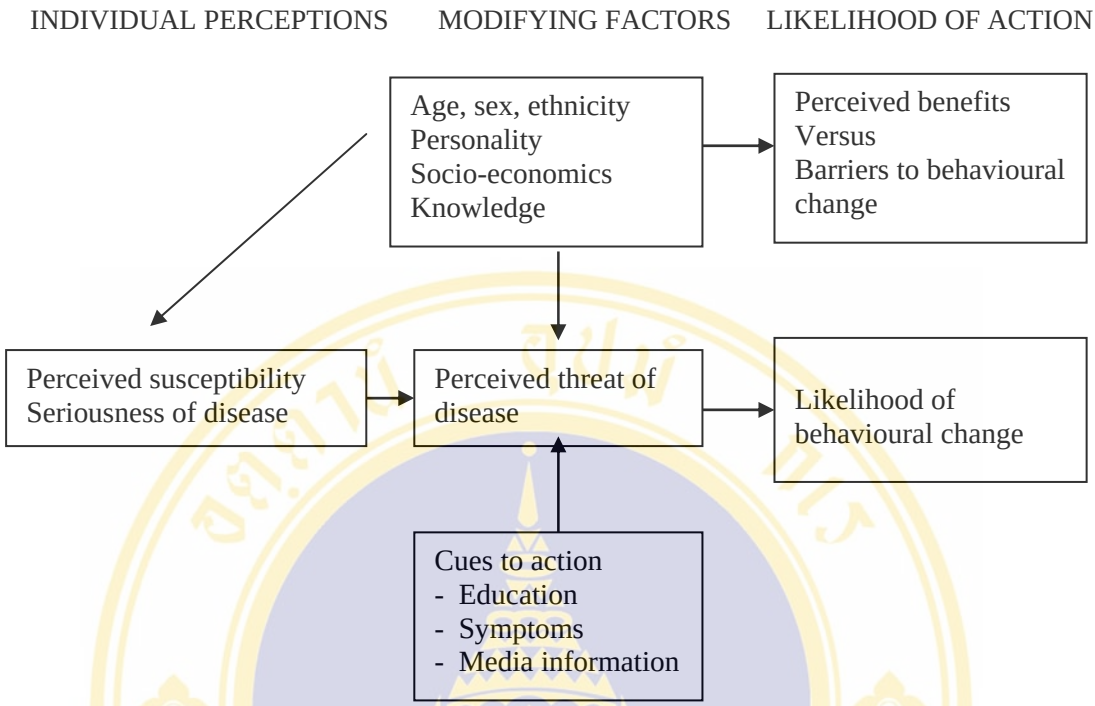

Source: Glanz et al, 2002, p. 52

Figure 6 Schematic diagram of the HBM

The application of the HBM for this study

There were applied the model based on the design of factors and the dependent variable according to the components of the HBM with conversing to the modified (applied) model (Figure 7). The HBM was the model could be explaining the process of relationship among independent factors and dependent factor in this study. In the applied model, the perception components were used by attitude components. The factors of socio demographic of the mothers was selected key factors these may relate and effect to the mothers' preventive behaviors and effect to other factors i.e., the mothers' knowledge and attitude. These socio demographic factors were age, occupation, income, marital status, types of family, numbers of children, the child historical previous home injury before the study etc… Regarding to knowledge of the mothers, were mentioned on the types of home injury. The mothers' attitude was mentioned on aspects of susceptibility, severe, benefits and barriers related to home

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injury prevention. The mothers' preventive behaviors were the mothers' practices for preventing home injury among children at their families. These behaviors were results of reaction of among factors like socio demographic factors, knowledge and attitude of the mothers with the supportive factors like reminders and communication. There was explanation of the components of the modified model in this study in term of the relationship among components and their key definitions following (the operational definition of variables of Chapter I)

Attitudes are brought to mind by deliberate effort, by thinking about a relevant attitude for a few minutes before taking action. Being reminded of the relevance of an attitude to the behavior can increase the impact of that attitude on behavior. Similarly, if people think about something other than the relevant attitude, the consistency or link between attitude and behavior will decrease. So when the attitude is not the uppermost thing on the person's mind, the impact of the attitude on behavior is reduced (47). Perceptions of personal control have a big influence on behavior: people do not act on attitudes if they believe they cannot perform the required behavior. When people think they can control their behavior, attitudes are effective in guiding action. This is because perceptions of control produce intentions that then guide attitude-consistent behavior (47). Attitudes can influence behaviors in two different ways: (i) they can trigger consistent behaviors directly, with little intervening thought; and (ii) they can influence behaviors after extensive and deliberate consideration or processing, through the formulation of intentions (47).

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INDIVIDUAL PERCEPTIONS MODIFYING FACTORS LIKELIHOOD OF ACTION

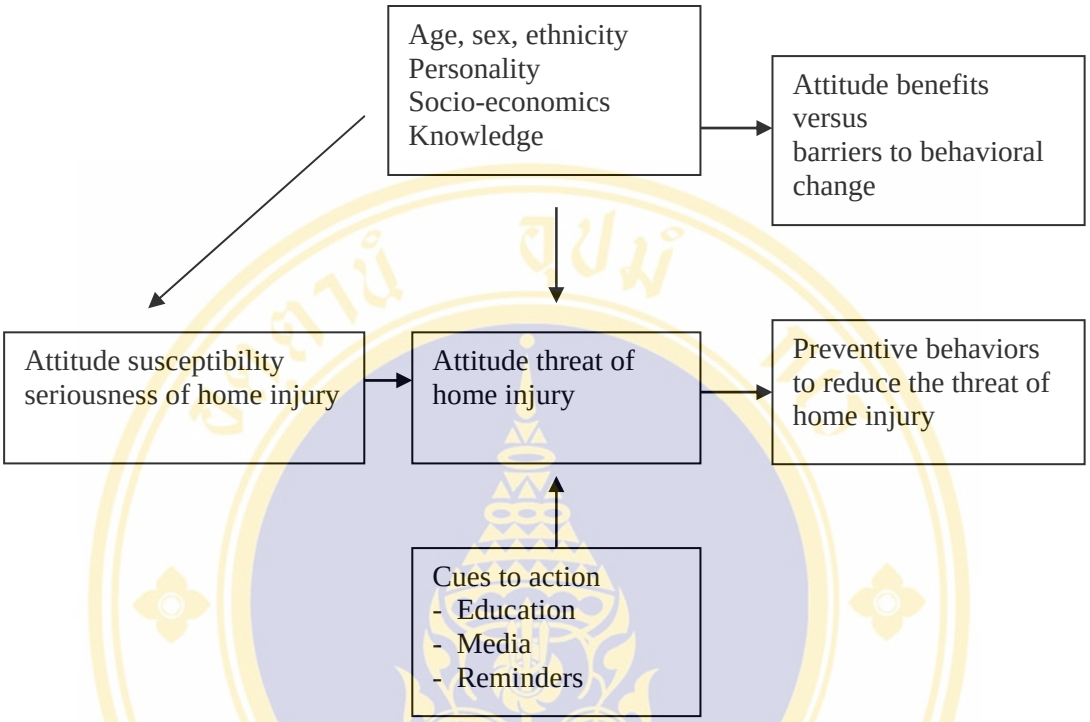

Figure 7 Modified schematic diagram of the HBM and home injury behavior

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CHAPTER 3
RESEARCH METHODOLOGY

3.1 Study design

The study design is a cross sectional descriptive study, which aims to discover the intention of mothers with children under 5 years old in Vietnam, towards preventive behavior on home injury in children under 5 years old group.

3.2 Study area

Data was collected from two communes of Tien Lu district, Hung Yen province in Viet Nam

3.3 Study population

Data were obtained from the Vietnamese mothers with children under 5 years old living in Hung Yen province. The mothers and children under 5 years old are living at the same family, at the same house. The mothers are affecting and taking care children will be selected in the study.

3.4 Study location

Hung Yen province is one of province belong Red River delta, located in the North of Vietnam, area is 923.9 km2, population 1.113.489, 10 districts and town, 161 communes and wards. Hung Yen is among 64 provinces of Vietnam, it has typical characteristic of the plain provinces and the injury pattern is quite similar among plain provinces, specially in Red River Delta area in the North in Viet Nam. Tien Lu district is one of 10 districts and town of Hung Yen province. It is similar socio-economic characteristic to 8 other districts of Hung Yen. Its population is 106,360

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people, 18 communes and towns. The home injury pattern and home injury among children under 5 years old within the district was considered typical pattern in whole the province and other area in Vietnam. There are some major types of home injury such as falls, burn, drawn, food poisoning and chemical poisoning, electric shock etc.

Cuong Chinh commune with population 7950 people, woman in group of 15-49 years old is 1500. Main people occupation is agriculture, rice cultivation and husbandry. Minh Phuong commune with population is 3684, woman in group 15-49 years old is 562. Main occupation is agriculture. Both communes have socio-economical and demographic characteristics are typical for communes in plain of Red River delta of the North region of Vietnam.

3.5 Sample size and sampling technique

3.5.1 Sample size

Number of respondents are calculated by the formula

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

Where:

n: the desirable calculated sample size

Z: level of statistical significance in this study, is set at 95% confidence interval = 1.96 for two - sided test (α= 0.05)

P: Anticipated proportion of individual in population possessing the characteristic of the study interest.

Two studies were conducted in Hai Duong and Hung Yen provinces showed that mothers have the preventive behavior on sharp objects in two studies is 77,3% and 65,1% (see the Appendix B). In this study (in the same Hung Yen province), P is

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assumed at 60% (0.6), that is a little bit lower than two previous studies, because there is not date or report on mothers' preventive behaviors in the study site.

And P = 0.6, (1- P) = 0.4

d: Degree of accuracy desired, setting at 0.07

Thus, the require sample size is not less than 188. In this study, the sample size is added 10% for preventing insufficiency information or inappropriate questionnaires, rounded 204 mothers who will be interviewees.

3.5. 2 Sampling technique

Step 1: One district is chosen purposively

Tien Lu district is one of 10 districts and town of Hung Yen province. It is similar to 8 other districts of Hung Yen, except the provincial town (urban area). Its population is 106,360 people, 18 communes and towns. The injury pattern within the district is supposed quite similar other district, excepted the provincial town because the district had the same socio demographic condition quite similar with other districts of the province. In this study, Tien Lu district is selected as purposive site study because some reasons as below:

- Its social- demographic characteristics is typical for other districts among province.
- Injury pattern in general and among children group in separately is considered similar other districts with the same socio-demographic characteristics.
- The structure and facilities of health system and local administration is similar.
- The limitation of performance of the study is time, sources, and convenience for student can conduct the study in here.
- Population and sample size of the district is appropriate with criteria of the study purpose in term of academic.

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- The result of the study is validity and may use for referencing by next studies or by local health authorities.

Step 2: Chose study communes and respondents

- Among 18 communes and towns of the district, the study assigns number of communes is two communes.
- Two communes are selected purposively from 18 communes list with reasons are convenient for conduct the study, enthusiasm persons, limited budget of the study, and quite similar socio-demographic characteristics with other communes in the district.
- In two communes, number of villages is 6 villages will be listed and all of them are selected for the data collection. The study will chose respondents are the mothers with children under 5 years old from each villages of two communes. There are 102 mothers will be selected from each commune.
- Number of mothers of each village will be selected by using the village mother list and by using sampling interval k method. Then, there are 34 mothers were selected from the mother's list of each village. In total, there are 204 mothers were selected from two communes

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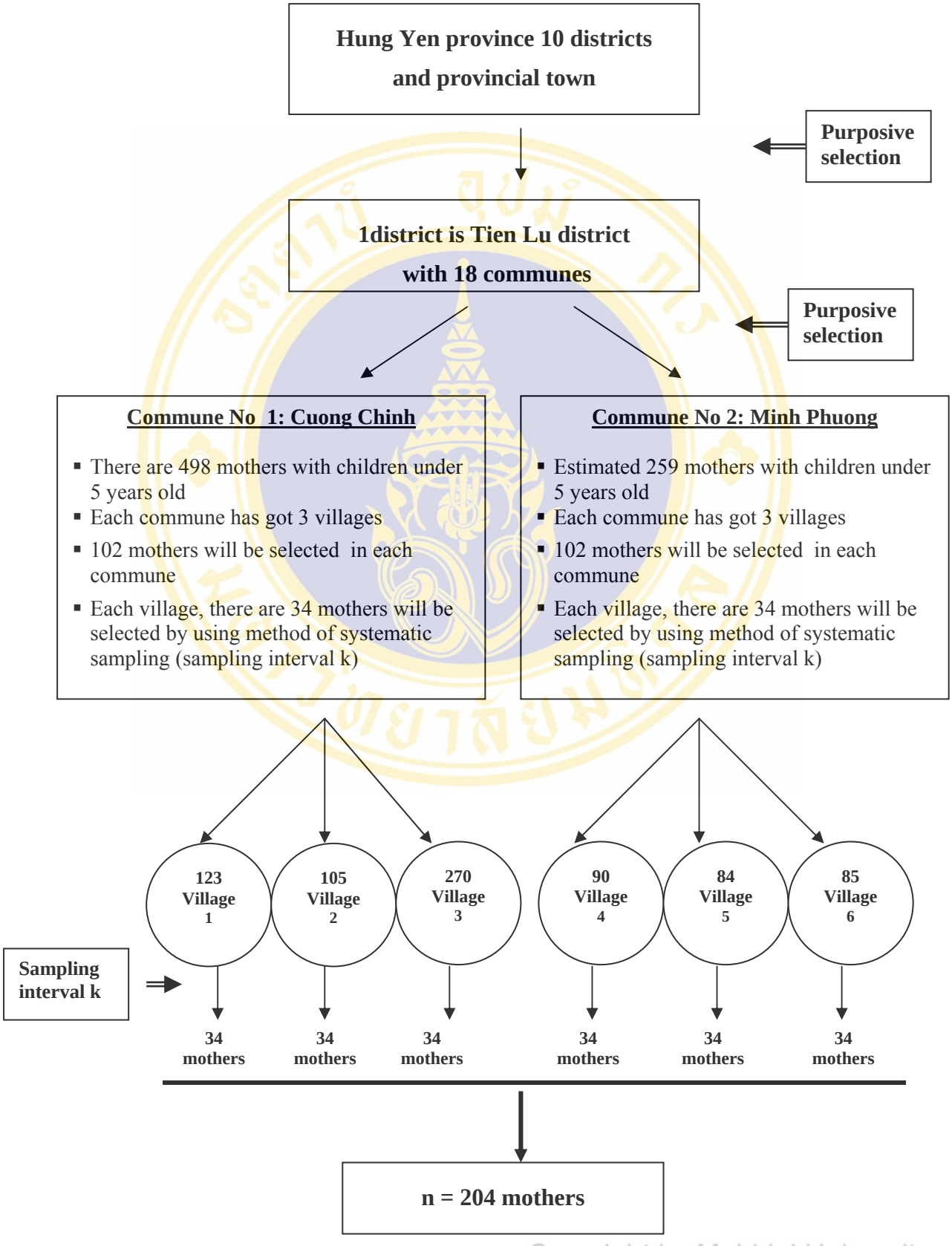
Sampling Frame



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3.6 Research instrument

The instrument in this study for collection of data is through the structured questionnaire. The question includes the following parts:

Part 1: Socio demographic characteristics

This part of questionnaire consisted of questions dealing with socio demographic factors, include age, marital status, education, occupation, types of families, number of children, number of children under 5 years old, family income, status of children got home injury within 3 weeks before study was conducted.

Family income is categorized in four groups based on the amount of income as follows: Group 1: Less than 1,000,000 VND; group 2: 1,000,000 – 2,000,000 VND; group 3: More than 2,000,000 VND.

Part 2: Knowledge on home injury

The knowledge part included 08 questions with 35 items related to the types of home injury and 4 causation related to burn, falls, sharp objects, animal bites among children under 5 years old group; place home injury occur.

Part 3: Attitude towards home injury

Attitude in this study divide in attitude towards to risk of home and towards benefit and barrier, related to hazards of home injury; benefit on implementation of preventive practices of mothers; barrier on implementation preventive practices of mothers. There are 3 questions with 12 items

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Part 4: Supporting sources (Cues to action)

This part including, media information, personal influence and reminder to prevention behavior of mothers on home injury. It includes 3 questions about the person is most effect to mother preventive behavior, information sources and the most favorite approaches of home injury communication in future.

Part 5: Prevention behavior on home injury

This part including 06 questions with 19 items related to mother's preventive behavior on home injury, included discussion and remind family member about home injury, preventive behavior about prevention of burn, falls, sharp objects, animal bites and behavior on carefully child supervision.

3.7 Data collecting

3.7.1 Test for validity and reliability

A pre-test survey was performed by some steps following:

Step 1: A questionnaire was developed according to the study objectives, concept framework. The thesis advisors, experts, colleagues and thesis committee council. were consulted. The final questionnaire was finalized.

Step 2: Translating the questionnaire from English into Vietnamese accurately.

Step 3: The pre-test in one rural commune similar the condition with the study sites and target population was done with mothers with children under 5 years old in Hung Yen province in Vietnam. The mothers are interviewed by using questionnaire and implemented by interviewers who have study experiences and be guided how to interview and fill out the questionnaire.

Step 4: The pre-test data was analyzed for reliability coefficient for knowledge about home injury, attitude on benefit and barriers of implementation of preventive

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behaviors on home injury. The method and result are used by formulas KR20 (0.874) and Cronbach's Alpha coefficient (0.6685).

Step 5: After the pretest survey, format and presentation of questionnaires including wording cleanness, sequence, translation accuracy and sufficient space for answer were revised.

3.7.2 Data were collected by the following steps:

- Contact the Provincial Health Office about the research project and asked for permission.
- At Operational District level, met with Health personnel and discussed about the research project.
- Contacting the head of the communes, village volunteers about the research project and ask their support for data collection by using questionnaires.
- The interviewers were selected from provincial health staff and were trained for how to collect data. The questionnaires were translated into Vietnamese version for using.
- The entire data collection was started from 9th to 26th January 2007.
- Data analyzed and wrote report in February 2007.

3.8 Data analysis

After examining and correcting the returned questionnaires, data was entered to Epi-data program and analyzed by Minitab 13 program.

Mean and standard deviation were calculated for age, family income, knowledge, perception and behavior.

Frequency and percentage were used for describing socio-demographic characteristics.

Chi-square test, Fishexact test were used to identify association between independent and dependent variables. The critical significance of these statistical level worked at $\alpha = 0.05$.

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3.9 Scoring of knowledge, attitude and behavior

3.9.1 Part 2: Knowledge on home injury

For the classification of score level were categorized into 3 level of knowledge as:

- High: greater than mean + S.D
- Moderate: > mean – S.D and = < mean + S.D
- Low: = < mean – S.D

3.9.2 Part 3: Attitude towards home injury

For the attitude towards home injury prevention, the answers were categorized into three levels, regarding the positive question, those who answer “agree” were get (2) scores, those who answer “not sure” were get (1) score and those who answer “disagree” will get (0) score. Regarding to the negative question, the score was the reverse of the positive question.

Regarding attitude towards home injury based upon mean score were categorized as positive attitude and the rest were negative attitude.

- Positive answer: Agree = 2, Not sure = 1, Disagree = 0
- Negative answer: Agree = 0, Not sure = 1, Disagree = 2
- Positive attitude: > = Mean:
- Negative attitude: < Mean

3.9.3 Part 5: Prevention behavior on home injury

In the part about preventive behavior on home injury, those who practice regularly were got (2) scores, those who practice just sometimes were got (1) score and those who never practice will get (0) score. Where a house has not got only one child and less than 12 months old age, stairs, dogs = 0 score. Score was categorized into 3 level as good, fair and poor behavior.

- Less and equal than mean – S.D is poor preventive behavior
- Greater than mean - S.D and equal and less than mean + S.D is fair preventive behavior
- Greater than mean + S.D is good preventive behavior

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CHAPTER 4
RESULTS

This research was conducted to describe the factors and relationship between socio demographic characteristic, knowledge on home injury and attitude on home injury of mothers with children under five years old with home injury preventive behavior of the mothers.

The overall goal of this study was determined the personal characteristics, knowledge, attitude on home injury of the mothers related to preventive behavior on home injury for children under five years old in Vietnam communes. Finally, the inferences draw from this study will enable set up with respect to behavioral and attitudinal campaigns to augment the efforts already being done in order cut down the number of home injury. The impact on health and losses sustained the economy by of the country might be mitigate by addressing the major determinant of home injury.

This is a cross-sectional study, most of the results have been summarized into frequent and percentage tables. The relationship between independent and dependent variables among target population has been statistically analyzed by Chi-square test, Fish Exact with the level of significance set at $\alpha = 0.05$.

The study result was presented in 6 parts according to the conceptual framework including:

1. Socio-demographic factors
2. The mothers' knowledge on home injury
3. The mothers' attitude on home injury
4. Supporting condition or cue to action
5. The mothers' preventive behavior on home injury
6. Relationship among the mothers' preventive behaviors with the mothers' knowledge, the mothers' attitude and socio-demographic factors.

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4. 1 General characteristics of mothers by socio-demographic factors

Table 7 Frequency distribution of socio-demographic factors

Socio-demographic factors	Number (n=205)	Percentage (%)
Age (years)		
Under 24years	53	25.85
25-35 years	144	70.24
36 years and above	8	3.90
Mean = 27.693 SD = 4.13	Min = 21	Max = 45
Marital status		
Married	202	98.54
Separated/divorced, widow	3	1.46
Education		
Illiterate, primary school	14	6.8
Secondary school	165	80.49
High school and above	26	12.71
Occupation		
Farmer	191	93
Others (Teacher, worker, public servant, self entrepreneur, housewife, labor)	14	7.0
Family income (VND/month)		
100,000-990,000	92	44.9
1000,000-1,990,000	96	46.8
More than 2000,000	17	8.3
Mean = 973,366 SD = 648,935	Min = 100,000	Max = 5,800,000
Family type		
Multi generation family	83	40.5
Nuclear family	120	58.5
Other	2	1

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Table 7 Frequency distribution of socio-demographic factors (cont.)

Socio-demographic factors	Number (n=205)	Percentage (%)
Number of children in the family		
1	71	34.6
2	107	52.2
3 and above	27	13.2
Mean = 1.8 SD = 0.772 Max = 6.0 Min = 1.0		
Number of children under 5 years olds in the family		
1	174	84.9
2 and above	31	15.1
Mean = 1.1 SD = 0.394 Max = 3.0 Min = 1.0		
Children living with family		
Yes	205	100
No	0	0

The age group of mothers is categorized into 4 groups. Table 7 shows that majority was age group 25-35 years (70.2%). The second high proportion was group equal or under 25 years (25.8%) and the last age group above 36 years old was smallest (3.9%). In this study, the mothers' minimum age was 21 years old and maximum age was 45 years old, the mean of age was 27 years with the standard deviation of 4.14.

For the marital status of the respondents, the married group was largest (98.5%). Regarding to education level of mothers, the mothers with secondary school level was more than two third (80.5%) and second highest was the mothers with high school and above level (12.7%). The mothers' occupation was reported that farmer was majority (93%).

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The group with family income per month from 100,000 - 990,000 VND and the group from 1000,000 - 1990,000 VND was nearly the same proportion (44.9% and 46.8% respectively). The group above 2000,000VND was lowest proportion (8.3%). The mean income was 973,366 VND with standard deviation of 648,935VND, median income was 1000,000 VND and minimum of 100,000VND to a maximum of 5,800,000VND.

Regarding to family type, the nuclear family proportion was greater than proportion of the multi generation family (58.5% and 40.5% respectively). Nowadays, the traditional multi generation family was shifting to nuclear family type, event it can happen in Vietnam rural area.

Number of children in each family, or number of children of each mothers was presented in table 7. The family those who had 2 children was indicated a half among families (52.2%). Next to family group had one child was one third (34.6%) and the family group with 3 children and above was one tenth (13.2%). There were five families with 4 children and one family with 6 children. Each mother had in average 1.8 children, with standard deviation was 0.772, median of 2.0, minimum of 1.0 and maximum of 6.0.

The study is concerned about how prevention home injury among children under 5 years old group. The rate of families with one child under 5 years was majority (84.9%) and the families with two children and above (15.1%). Each mothers had in average 1.1 children with standard deviation 0.394, median 1.0, minimum 1.0 and maximum 3.0. Almost family had children under five years old were living with them (100%).

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Table 8 Frequency distribution of respondents by child status on home injury within three weeks before the study

Children got home injury before the study	**Number (n=205)**	**Percentage (%)**
Children got home injury within 3 weeks ago before the study		
Yes	70	34.1
No	135	65.9
Types of home injury those children got within 3 weeks before the study, n = 71 (* multi choice)		
Falls	61	86
Animal bite or attack	2	2.8
Cutting or scratch by sharp objects	4	5.6
Burn	3	4.2
Other	1	1.4
The place, children got home injury within 3 weeks before the study, n =76 (* multi choice)		
In house	41	53.9
In kitchen	3	3.9
Outside the house (nearby)	32	42.2
Main reasons of home injury happened among children n =71 (* multi choice)		
No supervision	4	5.6
During supervision, however they do family member do other works at the same time	55	77.5
Caregivers is too young to take care (less than 10 years old)	3	4.2
Allow children play by themselves	9	12.7

The proportion of the mothers whom reported their children got home injury within three weeks before study was one third (34.1%).

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Regarding to the types of home injury which the children suffered with the type of falls was majority (86%). In addition, animal bite, cutting or scratch by sharp objects, burn and other were quite low (2.8%, 5.6%, 4.2%, and 1.4%, respectively).

In this study, the place where the home injury happened with the children under five years old were divided into three areas i.e., in house included living - room, bed-room, house' veranda with its stairs. Next area was kitchen, included the area was used for cooking. The kitchen was commonly separated with the house by courtyard. The last area was mentioned was outside areas included courtyard and house' alley or nearby house. The table 8 show that the proportion of home injury happened in house was more than a half (53.9%), outside the house but nearby was about one fourth (42.2%) and in kitchen was quite low (3.9%). Hence, the areas like in house and outside the house (courtyard, house's alley) where children spend more their time to play together or alone.

The reasons which were leading to home injury happened, there was two third mothers (77.5%) admitted that the reason was "during child supervision and doing other works at the same time". Other reasons were "no child supervision, caregivers were too young" and "allow children play by themselves" (5.6%, 4.2% and 12.7% respectively).

4.2 Mother's knowledge on home injury

In this part, the mothers were asked their knowledge about home injury and was showed in the table 9. Which were included the home injury affected to child's health, where were place children may get home injury, most common types of home injury, the causation of falls, causation of cutting or puncture wounds, causation of animal bites or scratch, causation of burn.

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Table 9 Frequency distribution of mother's knowledge on home injury

Knowledge on home injury causation	Number (n=205)	Percentage (%)
Home injury cause by (* multi choice)		
Fall	203	99.0
Sharp objects	118	57.6
Animal bites or attach	45	21.9
Fire hot object, hot food	145	70.7
Electric	51	24.9
Water containers or water sources	60	29.3
Medicine, food, chemicals	10	4.9
Machines (sawmill, agricultural machine in household…)	5	2.4
Natural object (pebbles, tree branches)	3	1.5
Where is place children may get home injury (*multi choice)		
In house	113	55.1
In kitchen	60	29.3
Outside the house (nearby)	161	78.5
Most common type of home injury among 4 common types (single choice)		
Fall	189	92.2
Wounds by sharp object	7	3.4
Animal bites or scratch	1	0.49
Burn	8	3.9

Nearly nine tenth (89.8%) of mothers understood that home injury affected to child health. Regarding to the types of home injury may cause to children under five years old by home injury related causation, the table 9 shows that the three highest causation of home injury are falls (99.0%), fire or hot objects (70.7%) and sharp objects (57.6%). The other causation were water source/ buckets (29.3%), electric shock (24.9%), animal bites or scratch, and others like poisoning, machines, natural objects (21.9%, 4.9%, 2.4% and 1.5% respectively).

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Table 9 shows that the mother's knowledge about where were places home injury may happen among children under 5 years old, there was two third of mothers answered outside the house (78.5%), in the house (55.1%) and in the kitchen was last (29.3%). Falls was the most common types of home injury among four common types i.e., falls, wounds by sharp objects, animal bites or scratch and burn (92.2%).

Table 10 Mother's knowledge on causation of falls, cuts by sharp objects, animal bites and of burns

Knowledge on home injury causation	**Number (n=205)**	**Percentage (%)**
Causations of falls (*multi choice)		
Anti slippery for house's floor	60	29.3
Children stumble the objects on the house's floor	185	90.2
Stairs without handrails	10	4.9
The bar's distance of stair's handrails is not enough narrow (less than 15 cm)	7	3.4
Veranda have steps or steps are not enough low for children	88	42.9
Do not have safety gates at the top and bottom of stairs, balcony	5	2.4
Windows are not locked or have not bars	13	6.2
Children climb up on furniture like tables or chairs	135	65.8
Other (like fighting)	14	6.8
Causations of cut or puncture wounds (*multi choice)		
Do not keep knifes and scissors in safe places after using	166	80.9
Do not make children wear shoes	70	34.1
Let children play with sharp objects	103	50.2

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Table 10 Mother's knowledge on causation of falls, of sharp objects, of animal bites, and of burn (cont.)

Knowledge on home injury causation	Number (n=205)	Percentage (%)
Causations of animal bites or scratch (* multi choice)		
Let children tease dog, or other animals	174	84.8
Do not put or animals in chain	85	41.4
Do not muzzle dogs or animals	66	32.2
Causation of burn (* multi choice)		
Do not put the thermos in the box from out of children's reach	169	82.4
Keep hot objects or hot foods in reach of children	124	60.5
Do not make a fence door to prevent children go to kitchen	37	18.1
Let children play with match and lighter or burn cigarette	77	37.6
Other	1	0.5

Regarding to causation of falls, the mother's answers with the highest percentage rate was children stumble the objects on the floor (90.2%), children climbed up on furniture (65.8%). The mothers were asked about what were causation of wounds caused by sharp objects, table 10 shows that majority of rate was "don't kept knifes or scissors in safe place and far from the child's outreach" (80.9%). The causation of animal bites or scratch children under 5 years old, mothers answered "let children teasing dog, cat or other animal" was highest rate (84.8%), next to the "do not put dogs in chain" (41.4%), "do not muzzle dogs" (32.2%).

The mother's knowledge on burn causation. The proportion of mother's answered "do not put the thermos in the box from out of children's reach" was more than two third (82.4%), "keep the hot objects or hot foods in the child's reach" was second high (60.5%). Then, "let children play with match and lighter or burn

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cigarette" was third high proportion (37.6%) and "don make a fence of kitchen to prevent children go into the kitchen" was low (18.1%).

For the classification of score of the mothers' knowledge level was categorized into three level, in which, the high knowledge level was assigned greater than mean plus standard deviation, the moderate knowledge level was assigned greater than mean minus standard deviation and less than mean plus standard deviation, the low level with less than mean minus standard deviation. Table 11 showed the frequency distribution of the mothers' knowledge levels as following.

Table 11 Level of mother's knowledge on home injury

Level	**Number (n=205)**	**Percentage (%)**
High	34	16.6
Moderate	130	63.4
Low	41	20.0
Mean = 14.56 SD = 3.32 Min = 8.00 Max = 25.00		

Table 11 showed that the mother's knowledge levels, in which the mothers' knowledge high level was lowest proportion (16.6%), the mothers' knowledge moderate level was majority proportion (63.4%) and the low knowledge level was not so quite so different with proportion high knowledge level (20.0%). The mean of score was 14.56 with median 14.56 with minimum 8.0 and maximum 25.0.

4.3 Distribution of percentage of mothers' attitude about home injury

The mother's attitude on home injury was divide into three types of attitude these were attitude on hazard of home injury, attitude on benefits on home injury prevention, and attitude on barriers to practice preventive behaviors. Regarding to attitude on hazard of home injury, it was mentioned like risks of home injury that may happened. There were some items illustrated to the severity and susceptibility of

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home injury among children under five years old. The attitude on benefits of home injury prevention respected to cost benefits which related to preventive behavior was gained. Then, the attitude on barriers of persuading preventive behavior toward to home injury prevention here it meant the burden and non profit received by doer. All attitude part were divided into three answered levels of the mothers i.e., agree, not sure and disagree.

For the mother' attitude on home injury hazards, table showed that the mother' disagree toward to item "home injury was not a serious problem for children's health", was highest (78.5%). However, there was contrary on the mother's attitude on "Home injury is unable to prevent" was accepted by mothers as agreement was highest (53.2%).

The mother's attitude on benefits of home injury prevention, there was almost items with the mothers' agreement was high level, particular, the item "Protecting child's health without disability and fatal" was agreed (93.2%). The item "Avoiding lost money because treatment of injuries for children" with mother's agreement was very high the same percentage with item "Avoiding children get hurt, fear mental shock" (96.6%).

For the mothers' attitude on barriers to persuading the preventive behaviors was showed that the item "My children can play by him self, do not need parent's supervision" with the highest disagree (96.1%) and "Children getting injury is not easy" with mother's disagree was high (76.1%), because it mentioned about susceptibility of home injury.

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Table 12 Mother's attitude on home injury hazard, benifits of home injury prevention, barriers to practice preventive behaviors

Mother's attitude	Agree		Not sure		Disagree	
	n	%	n	%	n	%
Attitude on hazard of home injury (n = 205)						
Home injury is not a serious problem for child's health	18	8.8	26	12.7	161	78.5
Home injury is unable to prevent	109	53.2	52	25.3	44	21.5
Children never are died by causes of home injury	27	13.2	48	23.4	130	63.4
Children may be suffered from disable in whole their life by causes of home injury	50	24.4	25	12.2	130	63.4
Attitute of mothers on benifits of home injury prevention (n = 205)						
Protecting child's health without disability and fatal	191	93.2	11	5.4	3	1.4
Avoiding lost money because treatment of injuries	197	96.2	5	2.4	3	1.4
Avoiding lost time because treatment of injury	193	94.2	7	3.4	5	2.4
Avoiding children get hurt, fear, mental shock	198	96.6	4	1.9	3	1.5
Attitude of mothers on barriers to practice preventive behaviors (n = 205)						
My children can play by him/herself, don't need parent's supervision	7	3.4	1	0.5	197	96.1
Children getting injury is not so easy	17	8.3	32	15.6	156	76.1
If I practice preventive behaviors that may require to spend my money and labor to do this precaution	63	30.7	32	15.6	110	53.7
I do not have time to practice preventive behaviors	34	16.6	27	13.2	144	70.2

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Regarding to the mothers' attitude levels, these were assigned into two levels of attitude, i.e., negative attitude was assigned less than mean of attitude score and positive attitude level was a mean and above. For the attitude meant the individual points of own view or a perception of home injury hazard and home injury prevention which may lead people to attempt for changing their preventive behavior. With the mothers' positive attitude proved their points of view and their attempt to change preventive behavior positively. In table 13 showed the percentage distribution of these levels following.

Table 13 Distribution of level of mother's attitude on home injury

Level of mother's attitude on home injury				**Number (n = 205)**	**Percentage (%)**
Negative attitude				97	47.3
Positive attitude				108	52.7
Mean = 19.3	SD = 2.5	Min = 13.0	Max = 24.0		

In table 13, negative and positive attitude levels had frequency distribution was not so much different (47.3% and 52.7%, respectively). It was showed that the negative attitude level was still nearly a half, it may be the information provision or communication intervention activities in the communes needed to more activities for changing the people's attitude and behavior.

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4.4 Supportive information and person who effect to mothers to prevent home injury

4.4.1 Person who is the most influence to mother regarding on persuasion of preventive behaviors

Table 14 Percentage distribution of information source, person who had the most influence to mother and communication approaches

Person who is most influence to the mother regarding on persuasion of preventive behaviors	Number (n=205)	Percentage (%)
Health worker	37	18.1
Husband	128	62.4
Family members	34	16.6
Volunteers	6	2.9
Information sources which the mother get from (*multi choice)		
Television	201	98.1
Radio	68	33.2
Commune radio	151	73.6
Newspapers	26	12.7
Book	21	10.2
Leaflets, posters, flipcharts	5	2.4
The best IEC approaches in future		
TV	50	24.4
Radio	2	0.9
Newspapers	1	0.5
Delivering leaflets/posters/	5	2.4
Communicating at household	115	56.1
Mother’s clubs	25	12.2
Mother’s competions	4	1.9
Visit/share experiences	1	0.5
Other	2	0.9

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The table 14 showed that 62.4% of the husbands was the majority person who persuaded mothers on preventive behaviors, 18.1% health workers and 16.6% family members. Most of the mothers received IEC through TV and commune radio (98.1% and 73.6% respectively). For other channel they will receive the IEC in the future was communication at house hold 56.1%, and from this data showed that mothers did not like to read.

4.5 Preventive behaviors on home injury

Table 15 showed the preventive behaviors which related to four common types of home injury and were done by mothers with children under five years old in two studied communes. Each preventive behavior had three levels of practicing were regular, sometime and never practice.

4.5.1 The mother's preventive behaviors on home injury

Table 15 Frequency distribution on preventive behavior towards causation of falls, cuts by sharp objects, animal bites, burns

Preventive behaviors	**Regular**		**Sometime**		**Never**	
Prevention of falls	**n**	**%**	**n**	**%**	**n**	**%**
Make steps of veranda is enough low for children, n = 202	133	64.8	5	2.4	67	32.8
Make the stairs' handrails , n = 21	20	95.2	0	0	1	4.8
Used safety gates at the top and bottom of stairs (among household have *stairs),* n = 20	2	9.5	0	0	19	90.5
Kept floors clean by promptly wiping up grease, water and other spills, n = 205	106	51.7	61	29.8	38	18.5
Removed hazards on floors or wherever possible	151	73.6	42	20.5	12	5.9
Make the windows have bars or been locked n = 205	174	84.9	5	2.4	26	12.7

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Table 15 Frequency distribution on preventive behavior toward causation of falls, cuts by sharp objects, animal bites and burns (cont.)

Preventive behaviors	**Regular**		**Sometime**		**Never**	
Prevention of cuts by sharp objects (n = 205)	**n**	**%**	**n**	**%**	**n**	**%**
Stored knives and other sharp objects out of the reach of children	173	84.4	29	14.1	3	1.5
Made children wear shoes any time	163	79.5	25	12.2	17	8.3
Covered or made a fence to prevent children touching to the machines those are working	93	45.4	14	6.8	98	47.8
Removed sharp objects away from outreach of children	149	72.7	21	10.2	35	17.1
Prevention animal bites (n = 205)						
Do not allow children tease dog, cat or other animals, n = 205	146	71.2	49	23.9	10	4.9
Keep dogs in chain, n = 163	45	27.6	67	41.1	51	31.3
Keep dogs in muzzle, n = 163	3	1.9	2	1.2	158	96.9
Prevention burn (n = 205)						
Put the thermos in the box for keeping or keep way from outreach of children	147	71.7	33	16.1	25	12.2
Put hot objects or foods far from outreach of children	176	85.8	19	9.3	10	4.9
Make a fencing gate of kitchen to prevent children go to kitchen and touch the fire	0	0	0	0	205	100

Table 15 showed the distribution of percentage in each item related to preventive behavior. The mother's preventive behaviors toward prevention of falls, the mothers' preventive behavior "Make the stairs' handrails" was very high (95.2%), however, there were only twenty one households had stairs and the stairs were made by the wife and husband decision during they built their houses. Versus with the item "make the stairs", while the item "used safety gates at the top and bottom of stairs" for protecting children to get home injury was very low (9.5%), event these practices

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were very important to prove for their concern about home injury prevention for children. The mother preventive behavior “make the windows have bars or been locked” was high (regularly, 84.9%). Another preventive behavior always showed the mother daily home works such as “Removed hazards on floors or wherever possible” was two third (regular 73.6% and sometime 20.5%).

Regarding to prevention wounds caused by sharp objects, the mother’ preventive behavior “Stored knives and other sharp objects out of the reach of children” was done regular with high proportion (84.4%) and sometime (14.1%). The “ made children wear shoes any time” was showed the mother’s concern and care for their children was high proportion (regular 79.5%, sometime 12.2%).

To prevent animal bites or attacked, normally in comunes the animals were dogs, cats were the most common and children were attacked sometime. The mother did not allow children tease dog, cat or other animals regularly was quite high (71.2%) and sometime (23.9%). While the households with dogs, they had kept the dogs in chain and in puzzle were very low proportions (27.6% and 1.9 %, respectively). These were high risk of animal bites or attack to children.

Burn among children under five years old had happened in sometime at household level. Table 15 showed that “Put the thermos in the box for keeping or keep away from outreach of children” regularly was quite high (71.7%) and “Put hot objects or foods far from outreach of children” regular (85.8%). However, there were not any household to make a fence in front of the kitchen to prevent children went into the kitchen (100%).

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Table 16 The mother's preventive behaviors on discussion with family members and child supervision

Preventive behaviors on discussion with family members (n = 205)	**Regular**		**Sometime**		**Never**	
	n	**%**	**n**	**%**	**n**	**%**
Told with family member about home injury hazards	135	65.8	69	33.7	1	0.5
Told with family member about home injury preventive measures	153	74.6	50	24.4	2	1.0
Touch your children how to avoid home injury n = 202	176	87.1	26	12.9	0	0
Supervising children carefully (n = 205)	200	97.6	5	2.4	0	0

The mother' preventive behaviors were discussion with family members and supervision were very important, in case, mothers could not take care children, another family members should take care children and protect them from home injury. 74.6% of mothers said they "told with family member about home injury preventive measures" regularly, they "touch your children how to avoid home injury" regularly was 87.1% and they "supervised children carefully" regularly was 97.6%.

The mother preventive behavior level was assigned into three levels and was accounted base on the scores of items of the preventive behavior part. The good level was greater than mean plus standard deviation, the fair level was from mean minus standard deviation and mean plus standard deviation, and the poor level was less than mean minus standard deviation. These were showed in table 17.

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Table 17 Frequency distribution of preventive behavior levels

Preventive behavior level	Number n = 205	Percentage (%)
Good	20	9.8
Fair	150	73.1
Poor	35	17.1
Mean 25.6 SD 4.7 Median 26.0	Min = 8.0	Max = 38.0

There were frequency distribution of preventive behavior level with good level (9.8%), fair level (73.1%), poor level (17.1%), and mean of 25.6, median of 26.0, minimum of 8.0 and maximum of 38.0.

4.6 Association between the mothers' preventive behavior levels with socio-demographic factors, supporting condition, the mothers' knowledge and attitude levels

4.6.1 Association between the mothers' preventive behavior levels with the mothers' knowledge level and attitude levels

Table 18 Association between the mothers' preventive behavior levels with Mothers' knowledge and attitude levels

Knowledge level	Preventive behavior level						Total
	Good		Fair		Poor		
	n	%	n	%	n	%	
High	6	17.6	18	52.9	10	29.4	34
Moderate	11	8.4	97	74.6	22	16.9	130
Low	3	7.3	35	85.6	3	7.3	41
Chi-Square = 10.735			P-Value = 0.030*				

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Table 18 Association between the mothers' preventive behavior levels with mother's knowledge and attitude levels (cont.)

Attitude level	Preventive behavior level						Total
	Good		Fair		Poor		
	n	%	n	%	n	%	
Negative	11	11.3	66	68.0	20	20.6	97
Positive	9	8.3	84	77.7	15	13.8	108
Chi-Square = 2.491		P-Value = 0.288					

Table 18 showed that the more knowledge mothers had the better preventive behavior were done. In particularly, the level of mothers' knowledge like moderate and low levels, the proportions of the mothers' good preventive behavior levels were accounted to go to abreast (8.4% and 7.3%, respectively). There was association between preventive behavior level with knowledge level with P-value = 0.03.

In the group of the mothers' negative attitude levels, the proportion of good preventive behavior level (11.3%) was higher than the group of mothers' positive attitude level (8.3%). However, the poor preventive behavior level of the mothers' negative attitude group (20.6%) was higher than the mothers' positive attitude group (13.8%). Thus, the mothers' negative attitude and positive attitude groups were contrary on the preventive behavior levels. However, if it was accounted in total of the good and fair preventive behavior levels in each group of negative or positive attitude of mothers, the positive attitude group was still higher than negative attitude group. The relationship between preventive behaviors with attitude level was not found association between them.

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4.6.2 Association between pair of mother's preventive behavior level and mother knowledge level.

In this part, the mother's preventive behavior levels were compared with the mother' knowledge levels on home injury for finding the relationship among them. These were comparison of the mother' knowledge level on types of home injury, on causation of falls, on causation of wounds by sharp objects, on causation of animal bites, on causation of burn with the mother's preventive behavior.

Table 19 Association between each pair of mother's preventive behavior levels and knowledge levels

Knowledge level	**Preventive behavior level**						**Total**	χ^{2} **(df)**
	Good		**Fair**		**Poor**			**P-Value**
	n	**%**	**n**	**%**	**n**	**%**		
Types of home injury								
High	4	14.2	13	46.4	11	39.2	28	13.39(4)
Moderate	14	8.8	122	77.2	22	13.9	158	0.010*
Low	2	10.5	15	78.9	2	10.5	19	
Causation of falls								4.239(4)
High	1	3.3	26	86.8	3	10	30	0.375
Moderate	13	8.3	108	69.6	34	21.9	155	
Low	1	5.0	16	80	3	15.0	20	
Wound's causation by sharp objects	**Good and fair**				**poor**			
High	10	55.5		8		44.5	18	Fish-Exact
Moderate and low	83	44.3		104		55.6	187	0.25353

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Table 19 Association between each pair of mother's preventive behavior levels and knowledge levels (cont.)

Knowledge level	Preventive behavior level						Total	χ^{2} (df)
	Good		Fair		Poor			P-Value
	n	%	n	%	n	%		
Causation of animal bites								
High	9	25.7	21	60	5	14.2	35	0.396 (2)
Moderate and low	37	21.7	103	60.5	30	17.6	170	0.821
Causation of burns								
High	1	2.3	29	69.0	12	28.5	42	12.61 (4)
Moderate	2	1.8	86	78.8	21	19.2	109	0.013 *
Low	7	12.9	39	72.2	8	14.8	54	

Table 19 was formed by comparison between each pair of the mothers' knowledge levels and the mothers' preventive behavior levels. The mothers with high knowledge level those who had higher proportion of the good preventive behavior level. The first pair about the mothers' knowledge on home injury types and the mothers' preventive behavior levels was found that they had significantly association with p-value = 0.010.

Second pair about the mothers' knowledge levels on causation of falls with the mothers' preventive behavior of falls was found contrary proportions between high and low knowledge levels and good preventive behavior level. However, in this pair, the mother with moderate knowledge level had highest proportion of the good preventive behavior level (8.3%). It was not found significantly association between this pair.

The mother's knowledge levels on causation of wound caused by sharp objects with the mothers' preventive behavior levels was found that the mother had higher

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knowledge level had higher good preventive behavior level to compare with group of mothers with moderate and low knowledge level. However there was no significantly association between them.

The mother's knowledge levels on causation of animal bites or scratch with preventive behavior of animal attack was found that the proportion of good preventive behavior (25.7%) in group of mother's high knowledge level was reported higher than the group of mother's moderate and low knowledge level. However, it was not found significantly association between them.

The pair of mother's knowledge levels on causation of burn with preventive behavior of burn was found that there was contrary about mother' knowledge levels and preventive behavior levels. Particularly, the mothers with low knowledge level those who had highest good preventive behavior level (12.8%). It was found there was significantly association with P-value = 0.013.

4.6.3 Association between mother's preventive behavior level and socio-demographic factors

Table 20 Association between mother's preventive behavior level and socio-demographic factors

Socio-demographic characteristics	**Preventive behavior level**						**Total**	χ^2 **(df)**
	Good		**Fair**		**Poor**			**P-Value**
	n	**%**	**n**	**%**	**n**	**%**		
Age								
<30	14	10.0	102	72.8	24	17.2	140	0.034(2)
> = 30	6	9.2	48	73.8	11	16.9	65	0.983

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Table 20 Association between mother's preventive behavior level and socio-demographic factors (cont.)

Socio-demographic characteristics	Preventive behavior level						Total	χ^2 (df)
	Good		Fair		Poor			P-Value
Education	n	%	n	%	n	%		
Illiterate, primary, secondary school	18	10.0	130	72.6	31	17.3	179	0.237 (2)
High school and higher	2	7.0	20	76.9	4	15.3	26	0.888
Income (VND)								
100,000-990,000	16	17.3	66	71.7	10	10.8	92	20.701(2)
1000,000-1990,000	3	3	68	70.8	25	26.2	96	0.000 *
More than 2000,000	1	5.8	16	94.2	0	0	17	
Total of children								
1-2	19	10.6	130	73.0	29	16.2	178	1.654 (2)
> = 3	1	3.7	20	70.0	6	22.2	27	0.437
Number of children Under five years old								
1	18	10.3	127	72.9	29	16.6	174	0.525(2)
> = 2	2	6.4	23	74.1	6	19.3	31	0.769
Children got HI within 3 weeks before the study								
No	15	11.1	100	74.0	20	14.8	135	1.969(2)
Yes	5	7.1	50	71.4	15	21.4	70	0.374

There was contrary between mother group with age under thirty years old and above thirty years old (10.0% and 9.2%, respectively). However there was not so different between them. There was contrary between the mother education levels of under secondary school and of higher. It was also found that there was significantly association among income group with preventive behavior level,

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P-value = 0.000. It was interesting in the lower income group had highest proportion of good preventive behavior of the mothers (17.3% compared with 3.0% and 5.8%).

Table 20 showed that the mothers who had one or two children, then who had the proportion of good preventive behavior level was higher than the group of mothers with more than two children (10.6% and 3.7%). However, there was no significant association between total of children in family and number of children under five years old in the family. Regarding to the children got home injury within three weeks before the study with the mother's preventive behavior level, it was reported that in the group of children did have home injury before the study, their mothers had proportion of good preventive behavior was higher than the group of children who had home injury (11.1% and 7.1%, respectively).

4.6.4 Association between mother's preventive behavior level and person who was influence to mothers and information sources

Table 21 Association between mother's preventive behavior level and person who was influence to mothers and information sources

Supporting sources	**Preventive behavior level**						**Total**	**χ^2 (df) P-Value**
	Good		**Fair**		**Poor**			
	n	**%**	**n**	**%**	**n**	**%**		
Who is most influence to you to persuade preventive behavior								
Health worker, volunteers	17	10.4	116	71.6	29	17.9	162	1.000(2)
Husband, family members	3	6.9	34	79.0	6	13.9	43	0.607
Where have you obtain your knowledge by								
TV	**Good**		**Fair and poor**					
Yes	20	9.9	181	90.1			201	Fishers Exact
No	0	0	4	100			4	0.66112

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Table 21 Association between mother's preventive behavior level and person who was influence to mothers and information sources (cont.)

Supporting sources	Preventive behavior level						Total	χ^2 (df) P-Value
	Good		Fair		Poor			
	n	%	n	%	n	%		
Radio								
Yes	12	17.6	46	67.6	10	14.7	68	7.252 (2)
No	8	5.8	104	75.9	25	18.2	137	0.027*
Commune radio								
Yes	12	7.9	114	75.4	25	16.5	151	2.437 (2)
No	8	14.8	36	66.6	10	18.5	54	0.296
Newspapers								
Yes	3	11.5	18	69.2	5	19.2	26	0.241 (2)
No	17	9.4	132	73.7	30	16.7	179	0.886

The person who were influence to the mothers on persuading their preventive behavior, it was found that the health workers and volunteers was reported to have higher proportion of mother's good preventive behavior to compare with group of husband and other family members (10.4% and 6.9%, respectively). However table 21 did not show the significantly association between the groups of persons who were influence to mothers to persuade their preventive behavior. Among the communication channels, the table 21 showed that there was association between preventive behavior level with radio at P-value (P= 0.027).

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CHAPTER 5
DISCUSSION

This cross sectional study was designed to describe preventive behavior on home injury prevention of mothers with children under 5 years old in communes of Hung Yen province, Viet Nam with respect to the socio-demographic characteristics, knowledge, attitude, cues to action. Home injury among children under five years old, nowadays, becomes one of the public health issues which are drawing from public concern due to it was the neglected serious problem before. The mother's preventive behavior was influence to child's health obviously. Thus, this study was one of contribution to the discovery of home injury picture related to mother's practices. The data collection by 205 structured questionnaires was done and analyzed based on the study objectives.

The findings showed that the mothers' knowledge at low level was 20 percent. both their negative and positive attitude was nearly the same proportion. Regarding to the mothers' preventive behavior of four types of home injury, there were some preventive behaviors were done poorly and consequence of these may cause home injury happened. The mothers' preventive behavior had significantly with family income, radio, knowledge level. The discussion as followed is from the finding of the study related to the factors affecting the mother's preventive behavior on home injury for children under five years old.

5.1 The mother's preventive behaviors toward home injury prevention

In this study, the mothers' preventive behaviors were described as the mother practices towards home injury prevention for their children under five years old. There were four common types of home injury i.e., falls, wounds by sharp objects, animal bites and burn and in each of home injury type to require some key preventive practices of the mothers, other wise, the mothers' preventive behaviors.

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The mother preventive behaviors level was assigned into three levels in which, the frequency distribution of the mothers' good preventive behaviors level was about one tenth (9.8%), the fair mothers' preventive behaviors level about two third (73.1%), and the rest was the mother poor preventive behaviors level (17.1%). Though, the mothers' poor preventive behavior level was not much.

In falls preventive behaviors of mothers and their houses had equipments for prevention falls, it revealed that the distribution of percentage of "make the stairs' handrails", "make the windows have bars or been locked" were very high and "removed hazards on floors or wherever possible" was about two third. While they "used safety gates at the top and bottom of stairs" for protecting children to get home injury was very low.

For preventing children from the wounds caused by sharp objects, the proportion of the mothers said they "stored knives and other sharp objects out of the reach of children" was high (84.4%), even they were regularly to "made children wear shoes any time" (79.5%, sometime 12.2%).

The proportion of mother did not allow children tease dogs, cats or other animals was quite high (regularly 71.2%, sometime 23.9%). However, proportion of other preventive behaviors like to keep the dogs in chain and in puzzle were very low (27.6% and 1.9 %, respectively). That why, the rate of children had been bited by dogs and other animals still was common in community.

Although, the burn was not happened frequently like three above types of home injury, however, the home injury hazard was still common among children under five years old. The proportion of mothers who did "Put the thermos in the box for keeping or keep way from outreach of children", "Put hot objects or foods far from outreach of children" regularly were high. However, it was surprising that there were not any household to make a fence in front of the kitchen to prevent children went to inside the kitchen.

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Other kinds of the mother' preventive behaviors like discussion with family members about home injury hazard, home injury prevention, child supervision teach their children how to avoid home injury regularly were reported very high proportion.

5.2 Association between socio-demographic factors and mother' preventive behaviors toward home injury.

In this study, it was found that the percentage of the mother' good preventive behavior on home injury in two group of mothers with their age under and above thirty years old was not so different (10.0% and 9.2% respectively). Normally, when age of mothers was older those who had more good experience on taking care children than younger mothers. There was not significant association between two variables. Meanwhile, proportion of the mother age group above thirty years old who reported their children had previous home injury within three weeks before the study was higher than the group of mothers under thirty years old (43% and 30%, respectively). Event, the proportion of the mother age group above thirty years old had more than two children (12.3%) was lower than the group of mothers under thirty years old. However, the study of S. Pooltawee found that mothers age under 24 years old and low schooling (< 3 years of elementary school) were statistically significant with a risk of major injury (OR = 2.30, 95% CI 1.5-3.4) (35). In this study, 98.5 percent of mothers was married group, it means the family included the husband and wife living with children under 5 years old. The comparison between marital status and the mother's preventive behavior on home injury was not meaningfulness so much because of other marital status groups were few.

Regarding to education level of mothers, the secondary school level was majority (80.5%). However, in mother group with education level were illiterate, primary and secondary school, had proportion of good behavior higher than the proportion of good behavior level of mother group with education of high school level (10% and 7% respectively). There was a study in Vietnam reported that the mothers had higher education level those who had better their knowledge on home injury prevention for

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children under five years old (P-value < 0.001) (34). It was impossible to deny that knowledge was one key factor for change preventive behaviors of mothers.

Family income per month, the study was found that there was contrary between the family income group less than 1000,000 VND and group 1000,000 VND to 2000,000 VND. That was the lower income group had the proportion of good behavior level (17.3%) was higher than the other group. However, the highest income group (more than 2000,000VND) had proportion of good and fair preventive behavior was higher than two rest groups. It meant that the higher income family, the mothers had better preventive behaviors. There was significantly association between two variables of preventive behavior level and family income, with P-value = 0.000. In the study in Haiphong, the household with poor condition has the percentage of injury case higher than other groups (12). Regarding the family income factor, even there was relationship with the mothers' behaviors, however, for improving higher income for households quickly was needed more longer time and other condition. The mothers' preventive behaviors could be improved by other factors like knowledge, supportive condition.

In this study, the mothers had few children those who had better their preventive behaviors. It meant that, the mothers had more attention to take care their children than they had more children (P-value > 0.05). The study in Haiphong showed that family groups have 1-2 children has lower percentage of children with injury comparing with family groups have from 3 children and more (12). The proportion of types of family were the nuclear family and multi generation family was little different and main mother's occupation was farmer more than ninety percent (93%). In group of mothers who reported their children did not have previous home injury before the study those who had better good preventive behaviors. However, it was not found the significantly association between the mothers' preventive behavior levels with these factors.

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5.3 Supporting condition (cue to action)

Person who were influence to mother to persuade preventive behaviors on home injury

The mothers' preventive behaviors always were influence by other persons like the family members, community's people and by many factors. In this study, the proportion of mothers reported that their husbands and other family members who were influence to their knowledge and preventive behaviors toward home injury was highest. However, the proportion of mothers' good preventive behaviors in group of health workers and volunteers as higher. It meant that health workers and volunteers in community who more effected to the mother's behaviors. There was no significant with the behavior levels, however health worker and husband those persons have positive to mother's preventive behaviors. Other study, Gielen et al showed that family members, they are very favorable to the attitudes, beliefs, and strong support from others for in-home injury preventive practices. Family members in enhancing caregiver roles in preschooler home injury prevention (43).

Information source which helped mothers attaint their knowledge on home injury

With respect to mass media in this study were reported to television was highest (98.1%), radio (33.2%) and commune radio (73.6%). This result was similar with some studies' results. Such as, a study in 8 Vietnam provinces about injury KAP and communication model, the proportion of household had television (86.6%), radio (39.2%). However, the proportion of television in mountainous low but higher proportion of radio (44). In group of mothers had received information from mass media those who had higher proportion of good preventive behavior to compare with the group of mothers who did not received information from mass media.

Among these mass media, only radio where there was significantly association with mothers' preventive behaviors (P-value = 0.027). It could be explained that the radio (central radio) was broadcasting whole full day, so the channel may effect to mothers' practices more than others. The mothers could be listening during they were

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still doing other works. The radio was knew to implement communication programs more easier than television.

Television was a favorite channel for almost people by attractive effects via its imagines, music, thus, if there are designing and conducting home injury communication by this channel will be useful. However, radio and commune radio was needed for most of communes. Mass media was communication approaches to effect to the mothers not only health information but also the home injury. They provided information and skill guideline for people, and drawing the public concern about the thing that community were expecting. However, communication for change behaviors needed to combine all kinds of communication measurements like printing materials. The other printing materials were accounted a few proportion in this study. It may be these communication approaches were not attention and investment for community.

Anyhow, the mothers expected the direct communication effectively in future like communication at household mother's club. This result had the same results of other studies such as a study in 8 Vietnam provinces about injury KAP (44), a study in Haiduong (34). It was admitted that printing materials were not received the attention of target groups like the mothers in community but it was necessary for behavior communication change.

5.4 Association between mother's preventive behavior level with knowledge and attitude levels

5.4.1 Association between preventive behavior level and mother's knowledge level

The mothers' knowledge on home injury was one key component of behavior changing. In this study, it revealed that the mothers those who had high knowledge level had high good preventive behaviors. There was significant between knowledge level and preventive behaviors with P-value = 0.030. In this study, the mothers had high knowledge were recognized in groups of their age under thirty, higher education

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level, had more two children, their children did not had HI within three weeks before the study, who had access with information sources. Thus, these mothers were younger with higher education may gain knowledge and accepted and adopted new practices more quickly than other groups and combined with using information on HI to help them had better preventive behaviors. The evident in this study showed the proportion of children without HI before study reported by the mothers' those who had higher knowledge and better behaviors was lower than other groups (Appendixes C1-2). The result was similar with other previous studies. A study in Vietnam showed that there was significant between information source with knowledge and preventive practices on injury for children (P = 0.000). The mother group with accessing to mass media and other group without accessing to mass media was different 2.62 times higher (34). Another study in two communes in Hung Yen province in 2005 found that more than 80 percent of interviewees, included mothers with children under 5 years old, attained the required knowledge level on injury and there was significantly association between the knowledge level and preventive behavior (P-value < 0.05) (15).

5.4.2 Association between mother's preventive behavior level with attitude level

It was found there was verse proportion of good preventive behavior level between the mother group with negative attitude (11.3%) and positive attitude (8.3%). However the rate of good and fair behavior levels of group with positive attitude higher than group with negative attitude level. Regarding the relation between preventive behaviors with attitude level was not found association between them. When comparison between the mothers' attitude levels with others factors (Appendixes C3), it was interesting that the mothers in group of negative attitude who belonged to mother groups with more children. It may be they had more experiences during to raise and take care children by practices more than by gain active knowledge from communication. Other study in Hung Yen, Vietnam showed that the interviewee's attitude about injury was able to prevent was very high (94.2%- 99.5%), and it showed that there was significantly association between positive attitude with better behavior (P-value < 0.05) (15).

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5.4.3 Association between the pair of mother's preventive behavior level and knowledge levels

The mother's knowledge on home injury types had significantly association with the mothers' preventive behaviors (P-value = 0.010). The mothers' had high knowledge those who had high good preventive behavior.

Mother's knowledge level of causation of falls and preventive behavior on falls for children

Mother's knowledge level of causation of falls and preventive behavior on falls for children. Event, the mothers know very well about the hazard of falls like children stumble the objects on the floor (90.2%), children climb up on furniture (65.8%). However, their preventive behavior of falls causation was still lower to compare with their knowledge, such as they used safety gates at the top and bottom of stairs regularly (9.5%), they kept floors clean by promptly wiping up grease, water and other spills regularly (51.7%), and they removed hazards on floors or wherever possible regular (73.6%). In a study in Haiduong province, Vietnam the proportion on making safe stair's handrails and safe gate in bottom and top of stairs was 61 percent (34). Association between level of knowledge on falls causation and level of fall preventive behavior was not found the. It revealed that the proportion of mothers with low knowledge level had lower proportion of good preventive behavior level. In this study found that the moderate level group had good behavior level proportion was highest. It was said that mother' knowledge level and preventive behavior levels were not so much tight relationship because there were still 61 cases of children falling (86%) within three weeks before the conducted study.

The families living in substandard housing have fewer injury preventive practices. Gielen, et al. asserted that 59 percents of family do not use stair gates. The study of drowning and submersion incident in children under five years indicated that 69 percents of drowning happen when children are supervised by their parents (43). The study in two communes in Hung Yen, Vietnam showed that the proportion of

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households implemented preventive practices on falls with the requirement level in two communes were different (65.4% and 37.4%) (15). However, the study in 8 Vietnam provinces about injury KAP revealed that the proportion of households had stairs was 78.3 percent but there was only 49.7 percent of those had the handrails and 14.3 percent those household did not have bars of corridors or balcony (44).

Mother's knowledge level on causation of cuts caused by sharp objects and preventive behavior on sharp objects for children

It was found that the between groups of high knowledge level had higher proportion of good and fair preventive behavior level to compare with the mothers' moderate and low knowledge level (55.% and 44.3% respectively). However, it was not found significantly association in two variables knowledge level and preventive behavior levels.

In fact, the proportion distribution of the mothers' preventive behavior on sharp objects were very high with two levels of their practice at home, such as they stored knives and other sharp objects out of the reach of children, regular (84.4%), sometime (14.1%); made children wear shoes any time, regular (79.5%), sometime (12.2%); they removed sharp objects from outreach of children, regular (72.7%), sometime (17.1%). To compare with a study in Haiduong province in Vietnam showed that the proportion of behavior on keeping sharp objects in safe places was lower than this study (77.3%) (34). In the study in Hung Yen, Vietnam showed that the proportion of households to remove sharp object out of child's reach was high (93.7%), store knives and scissors in safe place for children (87.0%) and made children wear shoes was high (82.9%) (15). The study in 8 Vietnam provinces about injury KAP, the proportion of households removed sharp object out of child's reach was a little bit lower than above study (81.9%) (44). These results of studies were similar with this study.

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Mother's knowledge level on causation of animal bites and animal bites preventive behavior for children

In this study, event it was not found significantly association between the mothers knowledge levels and preventive behavior levels towards animal bites prevention. But it is interesting to note that the mother with high knowledge level (25.7%) those who had proportion of good preventive behavior level was higher than the group of mothers with moderate and low knowledge level (21.7%).

Regarding to mother's knowledge on causation of animal bites or scratch the children under 5 years old, the result showed that they knew the causation to let children teasing dog, cat or other animal was highest rate (84.8%). Opposite with their knowledge was mentioned above, they answered another causations with low proportion such as "do not put dogs in chain" (41.4%), or "do not muzzle dogs" (32.2%). That why, the mothers' preventive behaviors were abreast with their knowledge. Give example, their preventive behaviors "do not allow children tease dog, cat or other animals" (71.2%), "keep dogs in chain" was low (regularly 27.6%, sometime 41.1% and never 31.3%); Keep dogs in muzzle (regular 1.9%, sometime was the same 1.2% and never 96.9%). These evident revealed that if the mothers had enough knowledge on causation of animal bites, it may be they practice preventive behavior more frequently. The study in Hung Yen, Vietnam indicated the same result (15).

Mother's knowledge level on causation of burn with preventive behavior of burn

Regarding to prevent burn for children under five years old, it was found that the mothers' knowledge on burn causation and prevention was not so high, but their preventive behaviors had proportions were higher. It was indicated that the mothers' knowledge " do not put the thermos in the box from out of children's reach" was more than two third (82.4%) and their practice towards this knowledge was quite high (71.7%). There was few respondents answered "do not make a gate of kitchen to prevent children go into the kitchen (18.1%) and their preventive behavior was

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abreast with knowledge, almost of them were never done (100%). In this pair between mothers' knowledge on causation of burn with preventive behavior of burn was found association between them with P-value = 0.013.

The study in two communes Da Trach and Ham Tu, Hung Yen province showed that the burn was one of highest risks at home and in two studied communes, the proportion of household implemented burn prevention regularly was high (80.0%). The practices on keeping thermos in the safe box or making the fencing gate of kitchen was found 60 percent (15). The study in 8 Vietnam provinces about injury KAP, found that the proportion of household had thermos was high (93.7%). However, they made thermos box and kept thermos far from child's reach was 50.7 percent. Other proportions like household had match or lighter (98.0%) and kept far from child's reach (82.1%). Kitchen's door (30.9%) (44).

Mother's behavior on discussing with family member and children supervision

The proportion of the mothers who admitted that they had discussed with family members on home injury hazard and preventive measures with family members and they touch their children how to avoid home injury were high. These practices was started from their knowledge and experiences during they raising their children. Event the mothers had more children they gained more their experiences. However, regarding the relationship between preventive behavior on "touch their children how to avoid home injury", there were no significantly association with total of children and number of children under 5 years old. The KAP survey on key practices of mothers with children under 5 years old showed that the mothers was person to teach children avoiding injury (66.9%) and another like the child's father (15.2%), grand parents (13.2%) (17).

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Mother' behavior on child's supervision

The mother's preventive behavior on children supervising carefully was found that the mother did it with the proportion was very high (regularly 97.6%). Regarding the relationship between preventive behavior on "Children supervision", there were no significantly association with total of children and number of children under 5 years old also. For children under 5 years of age, caregivers are effecting to risk of home injury among children. The results shown that the injury rate in children without caregivers or had caregivers who were not present at the time the children were injured) was 7.5 times higher that that in children with care takers (18). In a study on key practices of mothers with children under 5 years old found that the mothers supervised children carefully for preventing injury was lower than this study (44.1%) (17).

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CHAPTER 6
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This was a cross sectional study, was designed to explore the preventive behavior of mothers with children under 5 years old on home injury in two communes of Hung Yen province, Viet Nam. The behavior was depend on some factors i.e., socio demographic factors, knowledge, attitude and supporting factors or cue to action.

In this study, age group 21-29 years old was two – third (78%) and the rest of age group 30-45 years old was one-third (32%). The proportions of good and fair preventive behavior levels of mothers with age group under thirty years old and age group above thirty years old were not different. However, the proportions of children got home injury within three weeks before the study were different two mothers' age groups under and above thirty years old was lower than the rest group (30% and 43% respectively). Most of mother were belonged the married group (98.5%). Main mother's occupation was farmer (93%). Regarding to family type, more than half of nuclear family (58.5 %) and the rest of multi generation family (40.5%). Related to mothers education level, most of them were secondary school level (80.5%). There was not so different on the proportions of the mothers' preventive behavior levels in the groups of mothers education levels under and higher secondary school levels.

It was found the contrary in income group less than 1000,000 VND had the rate of good behavior level (17.3%) was higher than other groups. In addition, the income group more than 2000,000VND with proportion of fair behavior level was highest (94.2%). Two income groups (lower 1000,000VND and higher than 2000,000VND) had proportion good and fair preventive behavior levels were quite similar and higher than middle income group (P-value = 0.000).

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In average, each mothers had 1.8 children. The proportion of mothers with one child (34.6%), mothers with two children (52.2%), mothers with above three children (13.2%). In which, the proportion of mothers had one child under 5 years was majority (84.9%), had above two children (15.1%). The mother's preventive behavior levels in group of mother with 1-2 children was better than group of mother with 3 children and more.

Regarding to the proportion of children got home injury within 3 weeks before the study, there was even one third (34.1%) of children under 5 years old who was reported to get home injury. The proportion of mothers with children without home injury had good and fair preventive behavior levels higher than the proportion of mothers with children got home injury before the study.

Regarding to person who was most influencing to the mothers to persuade preventive behaviors were the husband (62.4%), family members (16.6%), while health worker (18.1%) and volunteers (2.9%). However, health worker and volunteers groups had influence to mothers with proportion of good preventive behavior level (10.4%) higher than group husband and family members (6.9%). It was inverse the fair preventive behavior level of this group (71.6%) was lower than the group of husband and family members (79%).

Regarding to information source which helped mothers gained their knowledge and helped to change their preventive behaviors on home injury. (98.1%) television was influence to mother's preventive behavior level was different with mother who were not received information from television. However, there were no association between television and preventive behavior level. The proportion mother answered received information from radio (33.2%). The mother's preventive behavior level of mother group had accessed the radio was better than the group no access the radio (P-value = 0.027). Radio was considered effective communication approach on home injury. Commune radio were one of main information source (73.6%). However, the rate of preventive behavior level was not so different between the mother group who received and not received information from commune radio. The printing materials

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like books, newspaper, leaflets, posters, flipchart were reported low proportion, event most of mothers graduated secondary school level. It may be these communication channels were not attention and investment for community.

Regarding to knowledge level of the mothers on home injury, the mothers obtained with the high knowledge level was 16.6 percent, with the moderate knowledge level was majority, 63.4 percent and with low knowledge level was 20.0 percent. While, regarding to the mothers' preventive behavior levels, the good level was about one tenth (9.8%), the fair level was two third (73.1%) and the poor level was nearly two tenth (17.1%). The relationship between the mothers' knowledge levels and the mothers' preventive behavior levels, the study found that the mothers group with the high knowledge level those who also had higher proportion of good preventive behavior level (17.6%), the fair preventive behavior level (52.9%) and poor preventive behavior level (29.4%). The mothers group with their moderate knowledge level those who had proportion of the good behavior level were rate 8.4 percent, the fair preventive behavior level (74.6%), the poor preventive behavior level (16.9%). The mothers group with low knowledge level those who had the good preventive behavior level was lowest (7.4%), the fair preventive behavior level (85.6%), the poor preventive behavior level (7.3%). There was significantly association between the mothers knowledge levels and the mothers' preventive behavior levels (P-value = 0.030).

The relationship between mother's preventive behavior level with attitude level. Negative level and positive level were a little different (47.3% and 52.7% respectively. It was found the contrary between the mothers group with negative and the group with positive attitude, there was reverse proportions of the mothers' good preventive behavior levels. However the rate of good and fair preventive behavior levels of the mothers group with positive attitude was still higher than the mothers group with negative attitude level. However, it was not found the significantly association between two these variables.

Mother's knowledge about the types of home injury, there were the proportions of children may suffered from falls (99.0%), burn (70.7%), sharp objects (57.6%),

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drowning (29.3%), electric shock (24.9%), animal bites or scratch (21.9%), and others. Places where home injury may happen among children under 5 years old was outside the house (78.5%), in the house (55.1%) and in the kitchen (29.3%). The mothers had high knowledge level those who had proportion of the good preventive behavior level higher than other mothers group with moderate and low knowledge levels (P-value = 0.010).

The relationship between the mother knowledge level on falls causation and fall preventive behavior level was not found the significantly association. The proportion of mother's knowledge levels and preventive behavior levels was different, however it always was not at the same time the mothers with high knowledge level and those who had good preventive behavior level and this order was not found to have the relationship with the number of children got falls within three weeks before the study.

Mother's knowledge level on causation of wounds caused by sharp objects and preventive behavior on sharp objects for children. In the mothers group with high knowledge level those who had good and fair preventive behavior level was higher than the mothers group with moderate and low preventive behavior level (55.0% and 44.3% respectively). It was not found significantly association.

This study revealed that in the mother group with higher knowledge level on causation of animal bites those who had higher preventive behavior level to compare with mother group with moderate and low knowledge level.

Regarding the relationship between the mother's knowledge level on causation of burn with burn preventive behavior level. In practicing the preventive behavior, the mothers had preventive behaviors with doing regularly were high with all preventive behaviors related to burn prevention, excepted the mothers behavior to make a fence of kitchen to prevent children go to kitchen and touch the fire, there was not found any mother or their households did it. There was contrary when the mother group with low knowledge level had good preventive behavior was higher than two mother groups with moderate knowledge level and high knowledge levels. The mother group

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of moderate knowledge level had fair preventive behavior higher than two rest groups (P-value = 0.013).

Almost the mothers had behaviors on discussion with the family's members about home injury hazards, preventive measures and teach their children how to avoid home injury.

The mother's preventive behavior on children supervising carefully was found that the mother did it as regularly (97.6%), and sometime (2.4%).

6.2 Recommendations

6.2.1 Recommendations

According to study result in order to factors related to preventive behavior on home injury among mother with children under 5 years old at communes of Hung Yen, Vietnam, there are recommended points following:

Knowledge, attitude and behavior of mothers with children under 5 years old

Mother's knowledge should be improved on home injury hazard, types of home injury, where home injury may happen, preventive methods on home injury.

Help mothers on skills on home injury prevention, included how to teach their children to avoid home injury and how to discuss with family member about home injury prevention.

Change mother attitude about the home injury toward to home injury hazard, benefit of persuading preventive behavior, barriers of persuading preventive behavior.

Encourage mothers to share their good experiences on home injury prevention to others. Encourage them to use health communication materials or products. Encourage them to involve to health communication activities related to health issues and home injury.

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Health worker and volunteers in community

Training communication skills on home injury prevention for health worker and volunteers in community, focus on method of direct communication (face to face) for mothers and caregivers in family.

Training to them about skills of organizing communication activities in community, skills to cooperate with other members of mass organization for prevention, skills on monitoring, supervision and evaluating towards mother's communication change behavior. Training about skills of using health communication materials and production in community.

Establishing and maintaining the network of health worker and volunteers in community. To maintain system of data report on home injury supervision at household and community by health workers and volunteers as well as promoting the network working on home injury prevention.

Mass media and communication products

In order to achieve the objectives, developing the spots, communication message, news, films etc…and broadcasting on television, radio at central and provincial levels. Communication products will be produced under forms of video, radio tape recorders and providing to community. Establishing schedule and communication plan and maintaining the communication messages regularly via the district and commune radio. In this study was found that radio had effected to mothers and had significantly. Thus radio should be considered as effective communication channel.

Developing and producing communication materials related to home injury prevention and delivering these materials to household and community, such as posters, leaflets, pamphlets, flipcharts, counseling cards, etc… It is notice to convey messages via all kind of printing materials like newspapers, magazines, books, including training curriculums.

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National programs and projects

Encouraging to develop programs and projects related to home injury prevention for children under five years old at commune level. Integrating the intervention activities on home injury prevention with other programs or projects towards to change the knowledge, attitude and preventive behaviors on home injury prevention of the mothers and caregivers and emphasizing to keep each house as safe home for children under five years old.

6.2.2 Recommendations for future study

This study was carried out in two communes with small sample size, thus the results had limited generalization and representative. Therefore it is suggested to study the same objectives with expanded areas or representative regions before conducting with larger study scale in whole the country and with qualitative approach, focus on exploring and deeper analyzing core causation of preventive behaviors on home injury for children under 5 years old. It is not enough for study population is the mother. It should be included all caregivers of children under 5 years old.

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APPENDIX

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APPENDIX A

QUESTIONNAIRS

FACTORS RELATED TO PREVENTIVE BEHAVIOR ON HOME INJURY AMONG MOTHERS WITH CHILDREN UNDER 5 YEARS OLD AT COMMUNES OF HUNG YEN PROVINCE, VIETNAM

Province: Hung Yen District: Tien Lu

Commune: …… Village: ……

Name of interviewee: ……

Part 1: socio-demographic

Please mark ✓ in the blank space [ ] with appropriated items of each questions

1 How old are you…….(years of mother's age)

2 Marital status:

1. [ ] Married 2. [ ] Separated/ Divorced 3. [ ] widow 4. [ ] Single

3 Education

1. [ ] Illiterate 2. [ ] Primary school 3. [ ] Secondary school
4. [ ] High school 5. [ ] Vocational school 6. [ ] Bachelor
7. [ ] Higher Bachelor 8. [ ] Other (specify).....

4 What is your occupation ?

1. [ ] Farmer 2. [ ] Teacher 3.[ ] Factory worker
4. [ ] Government employee 5. [ ] Self entrepreneur 6. [ ] Housewife
7. [ ] Labor 8. [ ] Other (specify)……..

5 Family income per month (total income of all family labours) by Vietnam Dong (VND)

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6 Type of family

1. [ ] Multi generation family *(consist of grandparents, parents' brothers and sisters, parents, children, included children under 5 years old)*
2. [ ] Nuclear family *(parents, children and included children under 5 years old)*
3. [ ] Other (specify)…….

7 How many children have you got……

In which, how many children under 5 years old……

8 Are children under 5 years living with you and your family ?

1. [ ] Yes 2. [ ] No

9 Within the past 3 weeks, are there any child under 5 years old in your family got home injury like falls, hurt, bleeding wounds, bruises, burn or any of other injuries ?

1. [ ] No *(jump to question 13)* 2. [ ]Yes *(ask questions 10,11,12).*

10. If yes, what types of injury your children suffer *(Multi choices)*

1.[ ] Falls 2.[ ] Animal bites 3.[ ] wounds by sharp objects
4.[ ] Burn 5.[ ] Other (Specific)……

11. If yes, where were places your children got injury at home during 3 weeks ago?

1.[ ] In a house 2.[ ] In a kitchen 3.[ ] Outside the house (nearby)

12. What were the main reasons of leading children get home injury *(Multi choices)*

1.[ ] No supervision
2.[ ] Supervision, however they do other works
3.[ ] Supervisor are too young for supervision (less than 10 years old)
4.[ ] Allow children play by themselves
5.[ ] Other (specific): ……

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Part 2: Knowledge of mothers on home injury

(Please mark ✓in the column "YES" or "NO" for each item of each question below

Knowledge on home injury causation

13 Do you think, home injury is one of factors affects to the under 5 years child's health?
[ ] Yes [ ] No

14 When we talk about home injury at group of children under 5 years that suggest you think that children may get injury by ? *(Multi choices)*

1. Falls [ ]
2. Sharp object causes wounds [ ]
3. Animals bites or scratch [ ]
4. Fire or hot objects hot food [ ]
5. Electric (shock) [ ]
6. Water sources, water containers [ ]
7. Medicine, chemicals, food [ ]
8. Machines *(sawmill, pumping, fan, etc)* [ ]
9. Natural object *(stone, brick, tree branches dropping from high to ground)* [ ]

15 Where is place that children under 5 years old may get home injury? *(Multi choices)*

1. In a house *(living room, bedroom)* [ ]
2. In a kitchen [ ]
3. Outside the house *(nearby, playground, garden)* [ ]

16 What is most type among 4 types of home injury occurring to children under 5 years at home ? *(Multi choices)*

1. Falls [ ]
2. Wounds by sharp object [ ]
3. Animal bites or scratches [ ]
4. Burn [ ]

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17 May causations of falls in group of children under 5 years old be? *(Multi choices)*

1. House floors are anti –slippery [ ]
2. Stumble the objects on floor [ ]
3. Stairs without handrails [ ]
4. Distance of handrail's bars is not enough narrow (<15 cm) [ ]
5. Veranda have steps or steps are not enough low for children (or high) [ ]
6. Do not have safety gates at the top and bottom of stairs or balcony [ ]
7. Windows are not locked or have not bars [ ]
8. Children climb up on funitures like tables or chairs [ ]
9. Other(specific):……..

18 May causations of cut or puncture wounds in group of children under 5 years old be? *(Multi choices)*

1. Do not keep knifes and scissors in safe places after finishing to use [ ]
2. Do not make children wear shoes [ ]
3. Let children play with sharp objects *(like knifes, scissors, glass or wood or bamboo sharp pieces)* [ ]
4. Other(specific):……..

19 May causations of animal bites or scratchs in group of children under 5 years old? *(Multi choices)*

1. Let children tease dog or other animals [ ]
2. Do not put og sor animals in chain [ ]
3. Do not muzzle dogs or animals [ ]
4. Other(specific):……..

20 May causation of burn in group of children under 5 years old be? *(Multi choices)*

1. Do not put the thermos in the box from out of children's reach [ ]
2. Keep hot objects or hot foods in reach of children [ ]
3. Do not make a fence door to prevent children go to kitchen [ ]
4. Let children play with match and lighter or burn cigarette [ ]
5. Other(specific):……..

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Part 3: Attitudes of mother

Attitude of mothers on hazard of home injury for a under 5 years child's health				
21	Do you think ?	Agree	Not sure	Disagree
	1. home injury is not a serious problem for child's health			
	2. home injury is unable to prevent			
	3. children never are died by causes of home injury			
	4. children may be suffered from disable in whole their life by causes of home injury			

Attitute of mothers on benifits of home injury prevention				
22	Do you think if you implement measures of preven home injury will be?	Agree	Not sure	Disagree
	1. Protecting child's health without disability and fa			
	2. Avoiding lost money because treatment of injuri			
	3. Avoiding lost time because treatment of injury			
	4. Avoiding children get hurt, fear, mental shock			

Attitude of mothers on barriers to practice preventive behaviors				
23	I think the barriers to practice the preventive behav may be some reasons below:	Agree	Not sure	Disagree
	1. My children can play by him/herself, don't need parent's supervision			
	2. Children getting injury is not so easy			
	3. If I practice preventive behaviors that may requir spend my money and labor to do this precaution			
	4. I do not have time to practice preventive behavio			

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Part 4 : Supportive information and person who effect to mothers to prevent home injury

24 Who mostly influence to you to persuade your preventive behaviors on home injury for your children? (*1 choice)*

1. [ ] Health worker 2. [ ] Husband 3. [ ] Family members
4. [ ] Friends 5. [ ] Neighbourhood 6. [ ] Voluntees
7. [ ] Other (specific)……

25 Where have you obtained your knowledge about home injury before? *(Multi choices)*

1. [ ] TV 2. [ ] Radio 3. [ ] Commune radio 4. [ ] Newspapers
5. [ ] Books 6. [ ] Leaflets, Posters, Flipcharts 7. [ ] Other:……

26 What is the best way of communication approach in future for you and your family and community to prevent home injury for children ? (*1 choice)*

1.[ ] tivi
2.[ ] radio
3.[ ] Newspapers
4.[ ] Delivering leaflets/posters
5.[ ] communication at household (family)
6.[ ] Mother Clubs
7.[ ] Competions
8.[ ] Visit/share experiences
9.[ ] Other(specific):……..

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Part 5: Home injury prevention behaviours of mothers with children under 5 years old

(This part, the interviewer must observe and decide to tick in 3 columns during asking the mothers)

To prevent falls/sharp objects/animal bites/burn for your children, what have you being done any preventive behaviours following ?

		Regularly	Sometime	Never
27	Discussion with family members about home injury			
	1. Told with family member about home injury hazards			
	2. Told with family member about home injury preventive methods			
	3. Touch your children how to avoid home injury *(interviewer ask mothers, if her child's age > 12 months)*			
28	To prevent falls for your children			
	1. Steps of veranda is enough low for children			
	2. Made the stairs' handrails *(ask only if household had stairs)*			
	3. Used safety gates at the top and bottom of stairs (*ask only if household had stairs)*			
	4. Kept floors clean by promptly wiping up grease, water and other spills			
	5. Removed hazards on floors or wherever possible			
	6. Make the windows have bars or been locked			
	7. Others (specific).....			
29	To prevent cut wounds by sharp objects for your children			
	1. Stored knives and other sharp objects out of the reach of children?			
	2. Made children wear shoes any time			
	3. Covered or made a fence to prevent children touching to the machines those are working			

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	4. Removed sharp objects away from outreach of children			
	5. Others (specific):			

		Regularly	Sometime	Never
30	To prevent animal bites for your children, what have you being done any preventive practices as below?			
	1. Do not allow children tease dog, cat or other animals			
	2. Keep dogs in chain *(ask only if household have dog)*			
	3. Keep dogs in muzzle *(ask only if household have dog)*			
	4. Others (specific):			
31	To prevent burn for your children			
	1. Put the thermos in the box for keeping or keep way from outreach of children			
	2. Put hot objects or foods far from outreach of children			
	3. Make a fence preventing children go to kitchen and touch the fire			
	4. Others (specific):			
32	Supervising children carefully			

Thank you very much for your answer *Date / / 2007*

Supervisor **Interviewer**

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APPENDIX B

PROPORTION OF THE MOTHERS' PREVENTIVE BEHAVIORS ON HOME INJURY IN TWO PREVIOUS STUDIES

No	Did you do below practices *(interviewer must observe and decide to tick in 3 columns)*	Study 1*	Study 2 **
1	**Prevention of Falls**		
	Veranda has got steps and or stairs have handrail	61.0	37.4
	Fence a rounding trees		44.0
2	**Prevention of Burn**		54.2
	Cooking area has got fence to prevent children come and touch with hot and burn objects	68.0	
3	**Prevention of cut wounds by sharp objects** (Clear and keep sharp objects outreach of chidren, Keep knifes and scissors in safe area after finishing to use, Wear shoes for children)	77.3	65.1
4	**Prevention of animal bites** (Dont allow children tease dog, cat or other animals)	68.7	87.0

(*) Minh.D.H, descriptive study on knowledge and practices of mother on injury prevention for children under 5 years old in Thanhmien district, Haiduong province, Vietnam, 2004 (34).

(**)Huong, P.L. Evaluation on effect of the project on home injury prevention in Khoai Chau district, Hung Yen province, 2005 (15).

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APPENDIX C

MISCELLANEOUS TABLES

Table C 1 Association between the mothers' knowledge level with socio-demographic factors

Socio-demographic factors	Mother's knowledge level						Total	χ^{2} (df)	P-Value
	High		Moderate		Low				
	n	%	n	%	n	%			
Age group									
<30	23	11.2	91	44.3	26	12.6	140	0.632(2)	0.729
>= 30	11	5.3	39	19.0	15	7.3	65		
Income									
100,000-990,000 VND	17	8.2	50	24.3	25	12.2	92	7.410(4)	0.129
1000,000-1990,000 VND	14	6.8	69	33.6	13	6.3	96		
More than 2000,000 VND	3	1.4	11	5.3	3	1.4	17		
Education									
Secondary level or below	27	13.1	116	56.5	36	17.5	179	2.357(2)	0.308
High school and higher	7	3.4	14	6.8	5	2.4	26		
Total of children									
=< 2	26	12.6	118	57.5	34	16.5	178	5.501(2)	0.64
>2	8	3.9	12	5.8	7	3.4	27		
Total of children under 5 years old									
1	28	13.6	113	55.1	33	16.1	174	1.20(2)	0.54
> = 2	6	2.9	17	8.2	8	3.9	31		
Children get HI within 3 weeks before the study									
No	15	7.3	100	48.7	20	9.7	135	1.969(2)	
		11.1		74.0		14.8	100%		
Yes	5	2.4	50	24.3	15	7.3	70	0.374	
		7.1		71.4		21.4	100%		

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Table C 2 Association between the mothers' knowledge levels and supporting condition

Supporting factors (cue to action)	**Mother's knowledge level**						**Total**	**χ^{2} (df) P-Value**
	High		**Moderate**		**Low**			
	n	**%**	**n**	**%**	**n**	**%**		
Who is most influence to you to persuade preventive behaviors								
Husband and family member	28	13.4	96	51.3	38	16.2	162	6.945 (2)
Health worker and volunteers	6	3.5	34	13.5	3	4.3	43	0.031
Where have you obtain your knowledge by								
TV								Fishers Exact
No	0	0	4	1.7			4	0.61038
Yes	34	16.5	167	80.3			201	
Radio								
No	22	10.7	85	41.4	30	14.6	137	0.935 (2)
Yes	12	5.8	45	21.9	11	5.3	68	0.626
Commune radio								
No	12	5.8	34	16.5	8	3.9	54	2.392 (2)
Yes	22	10.7	96	46.8	33	16.1	151	0.302
Book								
No	29	14.1	115	56.1	40	19.5	184	3.690 (2)
Yes	5	2.4	15	7.3	1	0.4		0.158

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Table C 3 Association between the mothers' attitude level with socio -demographic factors

Socio-demographic characteristics and supporting factors	Attitude level				Total	χ^2 (df)	P-Value
	Negative		Positive				
	n	%	n	%			
Age							
<30	68	33.1	72	35.1	140	0.279(1)	0.598
> = 30	29	14.1	36	17.5	65		
Income group (VND)							
0-990,000	46	22.4	46	22.4	92	0.608(2)	0.738
1000,000-1990,000	44	21.4	52	25.3	96		
> = 2000,000	7	3.4	10	4.8	17		
Total of children							
1-2	79	38.5	99	48.2	178	4.670(1)	0.031*
> = 3	18	8.7	9	4.3	27		
Total of children							
1	82	40.0	92	44.8	174	0.017(1)	0.897
> = 2	15	7.32	16	7.8	31		
Education							
Illiterate, primary, secondary	86	41.9	93	45.3	179	0.300(1)	0.584
High school and higher	11	5.3	15	7.3	26		

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Table C 4 Association between the mothers'attitude levels with and supporting sources

Supporting sources	Attitude levels				Total	χ^2 (df)	P-Value
	Negative		Positive				
	n	%	n	%			
Who is most influence to mother to persuade preventive behaviors							
Health worker	25	12.2	12	5.8	37	15.34(3)	0.002 *
Husband	58	28.2	70	34.1	128		
Family members	9	4.39	25	12.2	34		
Volunteers	5	2.4	1	0.4	6		
Where have you obtain your knowledge by:							
TV							
No	3	1.4	1	0.4	4	1.254 (1)	0.263
Yes	94	45.8	107	52.2	201		
Radio							
No	53	25.8	84	40.9	137	12.342 (1)	0.000 *
Yes	44	21.4	24	11.7	68		
Commune radio							
No	28	13.6	26	12.6	54	0.605 (1)	0.437
Yes	69	33.6	82	40.0	151		
Newspaper							
No	91	44.3	88	42.9	179	7.019 (1)	0.008 *
Yes	6	2.9	20	9.7	26		
Book							
No	84	40.9	100	48.7	184	1.997 (1)	0.158
Yes	13	6.3	8	3.9	21		
Leaflets, posters							
No	95	46.3	105	51.2	200	0.110 (1)	0.740
Yes	2	0.9	3	1.4	5		

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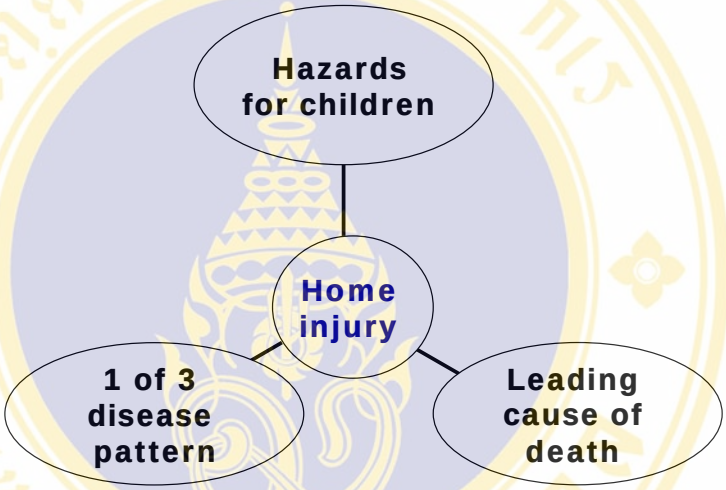
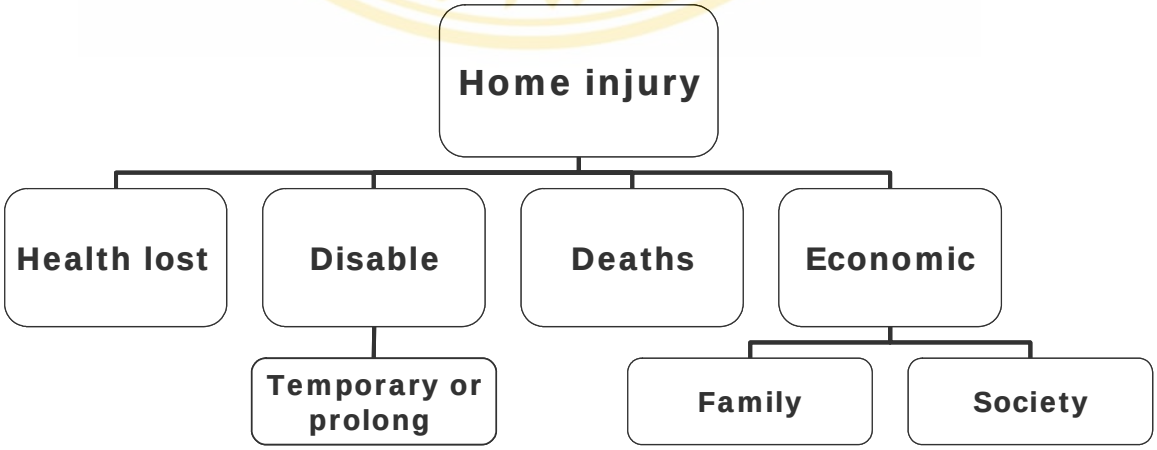
APPENDIX D

SCHEMA OF HOME INJURY WAS DEVELOPED FROM THIS STUDY FOR POWERPOINT PRESENTATION OF THE THESIS DEFEND

Home Injury issue with children under five years old



Injury and burden



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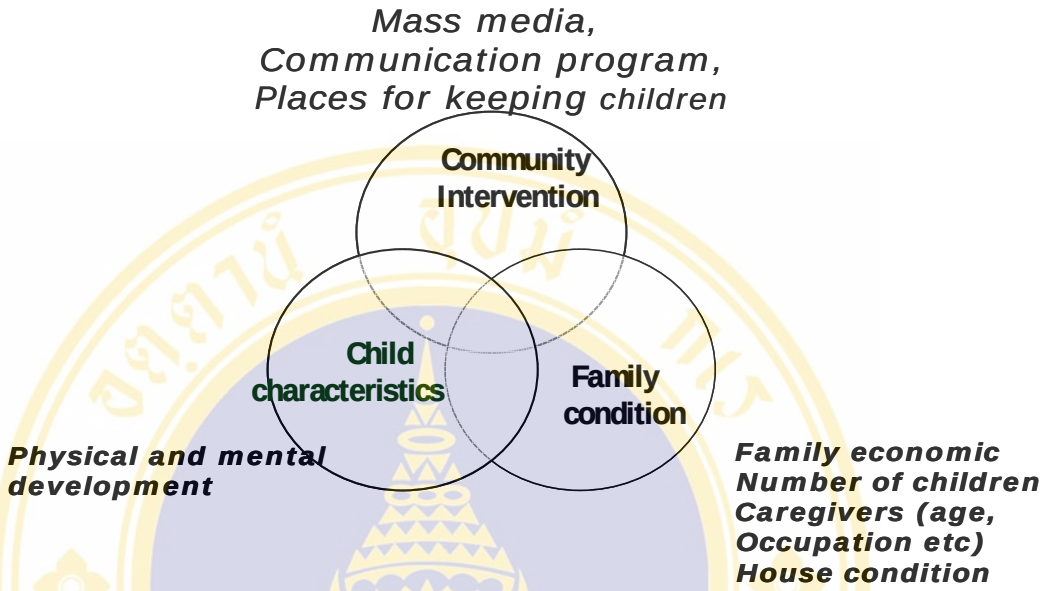
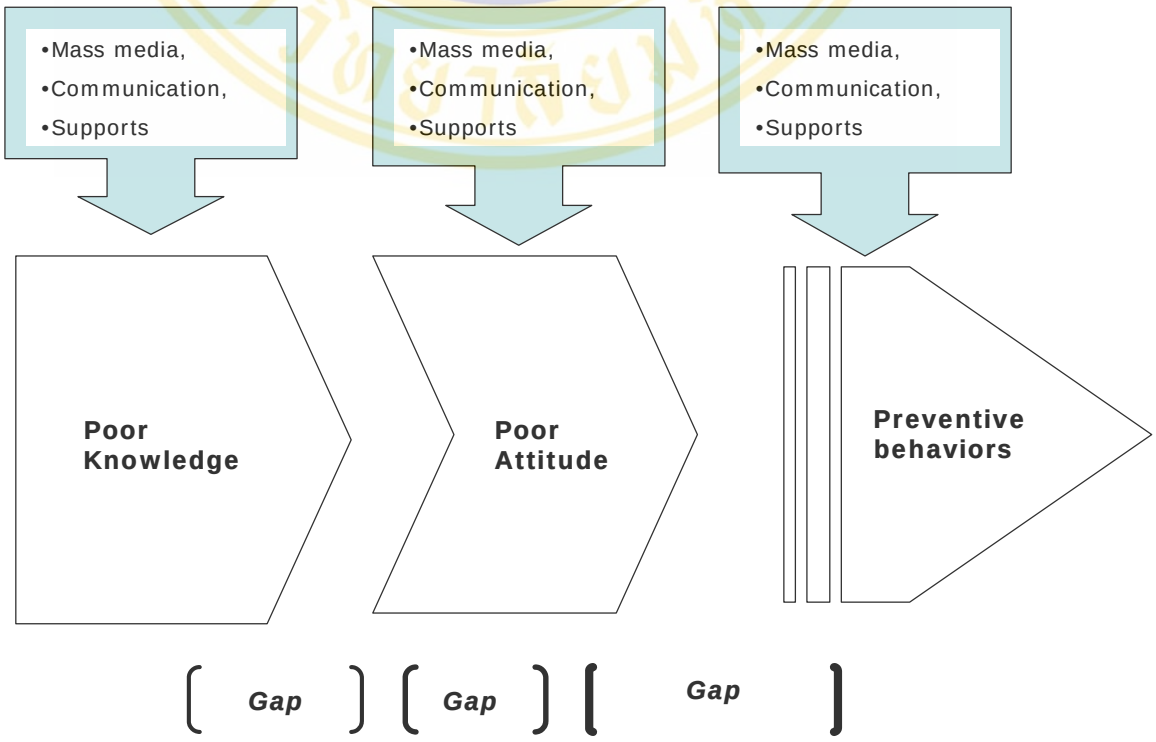
Factors related to home injury among children under five years old



Gap of mothers' knowledge, attitude and preventive behaviors



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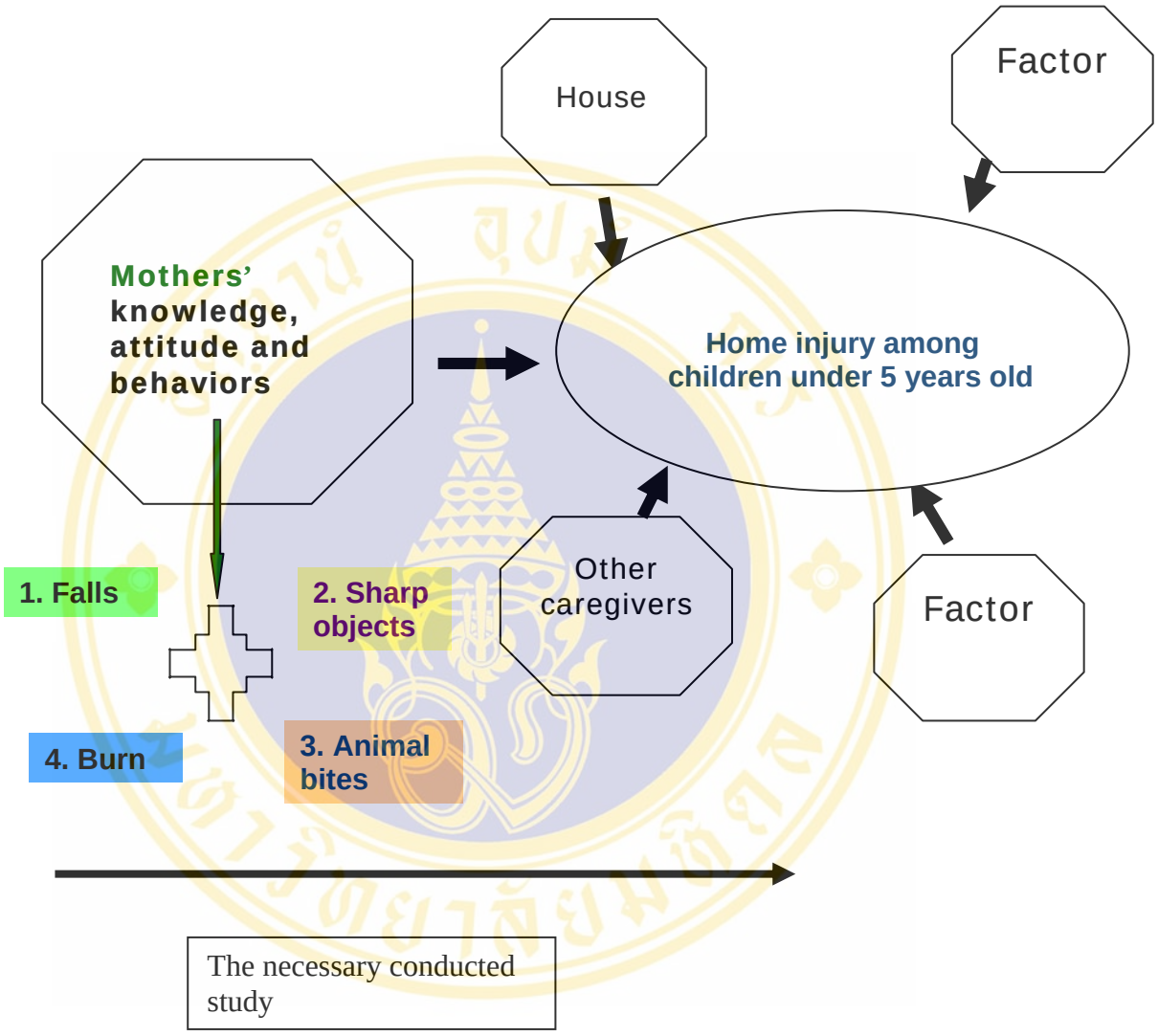
Four types of home injury and the necessary conducted study



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