THE EFFECT OF FLOOD PREPAREDNESS EDUCATION PROGRAM FOR THE ELDERLY LIVING IN THE COMMUNITY SARABURI PROVINCE THAILAND

Miss Saovalux Dullyaperadis

จุฬาลงกรณ์มหาวิทยาลัย
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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรดุษฎีบัณฑิต
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เสาวลักษณ์ ดุลยพีรดิส : ผลของโปรแกรมการให้ความรู้เพื่อเตรียมความพร้อมในสภาวะอุทกภัยแก่ผู้สูงอายุในชุมชน จังหวัดสระบุรี ประเทศไทย (THE EFFECT OF FLOOD PREPAREDNESS EDUCATION PROGRAM FOR THE ELDERLY LIVING IN THE COMMUNITY SARABURI PROVINCE THAILAND) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: รศ. ดร. รัตนา สำโรงทอง, หน้า.

น้ำท่วมเป็นภัยธรรมชาติที่พบบ่อยในประเทศไทย ผู้สูงอายุเป็นกลุ่มหนึ่งที่ได้รับผลกระทบจากภัยดังกล่าว การศึกษามีวัตถุประสงค์เพื่อศึกษาถึงการรับรู้ความเสี่ยง และประสบการณ์การจัดการปัญหาจากน้ำท่วม ทั้งก่อนการเกิด น้ำท่วม ขณะน้ำท่วม และหลังน้ำท่วม รวมทั้งการพัฒนาโปรแกรมเพื่อรับมือกับน้ำท่วมสำหรับผู้สูงอายุ ตลอดจนเพื่อประเมินผลของโปรแกรมฯ หลังจากการดำเนินงาน ในระหว่างกลุ่มผู้สูงอายุที่เป็นกลุ่มทดลอง และกลุ่มควบคุม ในเรื่องความรู้ ทัศนคติ และการปฏิบัติหรือการที่จะปฏิบัติตนเพื่อรับมือกับภัยน้ำท่วม การศึกษาครั้งนี้เป็นการวิจัยกึ่งทดลอง ดำเนินงานในตำบลหรเทพ ตำบลตลาดน้อย และตำบลโคกใหญ่ อำเภอบ้านหมอ จังหวัดสระบุรี โดยเก็บข้อมูลทั้งเชิงคุณภาพและเชิงปริมาณ การศึกษาเรื่องการรับรู้ความเสี่ยง และประสบการณ์การจัดการปัญหาจากน้ำท่วม เก็บข้อมูลโดยการสัมภาษณ์อย่างไม่เป็นทางการ การสัมภาษณ์เจาะลึก และการสนทนากลุ่ม มีการดำเนินการจัดกิจกรรมแทรกแซง รวมทั้งการพัฒนาคู่มือสำหรับการรับมือน้ำท่วมโดยใช้กระบวนการที่ชุมชนมีส่วมร่วม ซึ่งมีการประเมินผลก่อนและหลังกิจกรรมแทรงแซง โดยติดตามประเมินในเดือนที่ 3 และเดือนที่ 6 หลังมีกิจกรรมฯผลการศึกษาเชิงคุณภาพ พบว่าผู้สูงอายุรับรู้ถึงความเสี่ยงต่อภัยน้ำท่วม หากแต่คิดว่าไม่รุนแรง ประสบการณ์ในการจัดการรับภัยน้ำท่วม พบว่ายังขาดการเตรียมตัวในการรับมือกับภัยน้ำท่วม ผลของการศึกษาเชิงปริมาณพบว่าหลังจากการจัดกิจกรรมแทรกแซง โดยการให้ความรู้ รวมทั้งการจัดทำคู่มือน้ำท่วมร่วมกันในชุมชน พบว่าคะแนน ความรู้ ทัศนคติ และการปฏิบัติหรือการที่จะปฏิบัติตนเพื่อรับมือกับภัยน้ำท่วมเพิ่มขึ้นเป็นลำดับ เมื่อเปรียบเทียบคะแนน ก่อนเริ่มมีกิจกรรมแทรกแซง และหลังมีกิจกรรมฯใน เดือนที่ 3 และเดือนที่ 6 การศึกษาสรุปได้ว่าโปรแกรมเพื่อรับมือกับน้ำท่วม มีผลต่อการเพิ่มความรู้ ทัศนคติ และการปฏิบัติหรือการที่จะปฏิบัติตนเพื่อรับมือกับภัยน้ำท่วมในกลุ่มผู้สูงอายุ การให้ความรู้ในชุมชนเป็นเรื่องสำคัญต่อการรับรู้ความเสี่ยงต่อภัยน้ำท่วมอันนำไปสู่การปฏิบัติที่ถูกต้อง ดังนั้นการให้ความรู้ในชุมชน เรื่องการเตรียมรับมือต่อภัยน้ำท่วม โดยชุมชนมีส่วนร่วมควรดำเนินการอย่างต่อเนื่อง

สาขาวิชา สาธารณสุขศาสตร์ ลายมือชื่อนิสิต .....

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SAOVALUX DULLYAPERADIS: THE EFFECT OF FLOOD PREPAREDNESS EDUCATION PROGRAM FOR THE ELDERLY LIVING IN THE COMMUNITY SARABURI PROVINCE THAILAND. ADVISOR: ASSOC. PROF. DR. RATANA SOMRONGTHONG, pp.

This study aimed to describe elder's risk perceptions and their experiences flood management before, during and after flood; as well as to develop flood preparedness (FPEP) for the elderly and to assess their knowledge, attitude and practice/intention to practice among the elderly after receiving the intervention program. This quasi-experimental study was carried out at Horathep, Taladnoy and Kokyai sub-districts, Ban Moh district, Saraburi Province Thailand. Qualitative and quantitative techniques were employed. Intervention study involved using two groups pre-test and post-test design. Flood manual booklet was developed through community participation in order to create community capacity building. The qualitative finding showed elders perceived flood risk but underestimated the flood situation; so that they lacked of flood preparedness. The results of the quantitative method showed that after the elders in the intervention group received the flood preparedness education program, their scores of knowledge, attitude and practice/intention to practice were increased from the baseline to the 3rd and 6th follow up. Comparing between the intervention and the control group, there were statistically significant differences increased of knowledge, attitude and practice/intention to practice scores within group (p-value<0.05) and between groups (p-value<0.05). Community education is very important for effective response to flood risk. Community regular drills and ongoing training in regards to flood disaster preparedness involving community members should be done.

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Chapter I: Introduction

1.1 Background

1.1.1 Global Population Aging

The global population of people aged 60 years and older is approximately 605 million accounting for 10% of the world's population. By the year 2050, it is expected that the percentage will be more than double; and aging population will be surpassing the population of children aged below 15 years [1]. Due to medical and social advances that have reduced deaths from infectious diseases and have improved nutrition, housing and sanitation, numbers of the elderly are rising [1]. According to the World Population Prospects the 2010 Revision, the world population has increased from 2.5 billion in 1950 to 6 billion in 2000 [2]. It is expected to reach 9.1 billion in 2050. While global aging represents a triumph of medical, social, and economic advances over diseases; it also represents many challenges of population aging [3]

Towards Age-friendly [4], stated that people now are living longer, and fewer of children population are being born, the numbers of older people are increasing. Numbers of population aging are expected to continue outpace social and economic

development in developing countries. Developing nations are aging faster, especially in Asia. Majority of older people will be living in developing countries in which they are often least prepared to meeting the challenges of aging society. The World Bank stated that population aging is a global issue that will soon affect every country around the world [5]. Population aging is defined as the increasing proportion of older people 60 years old and above in the total population [6]. Situation of the Thai Elderly mentioned that according to the United Nations population, aged over 60 years accounted for more than 10% and aged over 65 years accounted for more than 7% of the country's population is considered aging society. And the proportion of the population aged over 60 years for more than 20%, and over 65 years for more than 14% is considered aged society [7].

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1.1.2 Population Aging in Thailand

The UNFPA Thailand [6] has mentioned that Thailand is facing rapidly growing population of older people. Life expectancy at birth (average number of years a new-born is expected to live) increased from 52 years in 1950-55 to nearly 71 years in 2000-

2005. It is projected to increase further to 76.8 years in 2025-2030 and 79.1 years by 2050. The country is undergoing an extensive process of population aging [8]. Population aging in Thailand is occurring faster than it did in the past [2]. United Nations Population Fund [6] reported that Among the eleven countries in South-East Asia, Thailand once ranked as the seventh most aged country. Singapore is the first aged country in the region; then Thailand is now the second. On an average, women are expected to outlive men by about nine years. Such changes in population structure will imply a reduction in income per capita, savings and investments, as well as increase in public expenditures on social security, health care and welfare of older people in Thailand. The number of working age adults potentially available to contribute to support of the population aged 65 years or more will be reduced by half. In term of financial income supported for older people in Thailand, mainly 75% comes from two sources: gainful employment and transfer payments from family members. Declining birth rates and longer life expectancy, population is aging at rapid rate. These reasons make Thailand has very short time to prepare readiness of its

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population and systems to cope with such challenging phenomenon. Now, it is necessary for the country to plan and set up good strategies to prepare young adult populations to become the active aging, full of knowledge, capability and security in the future.

1.1.3 Aging and Flood Disaster

As population continues to increase; there is a great concern for well-being of the older populations. As people grow older, the chances that they will experience health crisis, physical disability, cognitive impairment, and death all increase [5]. According to HelpAge International, "*Older People in Disaster and Humanitarian Crises*" older people are one of the most vulnerable groups in disaster and conflict [9]. The report mentioned that a global aging and natural disasters mean more and more of older population will be affected by it. Older people particularly are considered vulnerable during disasters. Disaster threats can be from man-made or natural disasters. Once they are affected by disasters, their needs are very different from other groups. Older age brings reduced mobility and muscle strength, impaired

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sight and hearing and greater vulnerability to hear and cold. These conditions can become major handicaps that overwhelm an elder's ability to cope with natural disaster situations. Previous research has revealed that elders response to natural disasters as varied as shock anxiety, sleep disturbances, impaired interpersonal relationships, depression, and suicide [10]. Ehrenreich mentioned that elders are at increased risk for adverse emotional effects in the wake of disaster. They may lack of help and other resources [11]. This can increase stress on the family and community. Due to changing in climates, many predict a continual increase of natural disasters in the future [12]. Flood is one of the most common severe forms of natural disasters. It can result in direct economic and property losses, physical injuries, deaths, and psychological injuries [10].

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1.1.4 Flood Disaster and the Elderly Situations in Saraburi Province, Thailand

According to the Thai Meteorological Department[13], severe flooding occurred during the 2011monsoon season in Thailand. The flood started to affect some areas in upper Thailand since mid-May. In June, heavy rainfall occurred in many locations

throughout the month; and in July downpour rain continued in many areas. During August to September, many areas such as northern, central, and northeastern parts experienced flooding. Massive flooding persisted mainly in lower northern and central parts of Thailand. Many areas were severely affected for months. The rainy season in Thailand lasts from June to October; and floods are an annual and common problem in Thailand [14].

Saraburi was one of the central provinces of Thailand affected by the flood. From August 2011 to September 2011, Saraburi experienced some of the worst floods in the history. Local government, residential areas, farm lands experienced flood damage. Damage occurred to district infrastructure including roads, bridges, temples, school, water and electrical services. Many people all ages were affected by the flood event, especially the elderly. According to the two directors from Taladnoy sub-district and Horathep sub-district Health Promoting Hospitals, many elderly living in the areas were severely affected physically and emotionally [15].

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Saraburi province's population is approximately 599,524 residing in the area; comprising of 69,807 older people aged 60 and above that about 11.64% of all population [7]. Saraburi is becoming aging society; it is one of central provinces that have quite numbers of elderly. With the 2011 flood disaster and its consequences happened to the elderly living in the province especially in Taladnoy and Horathep Sub-districts, knowledge on flood preparedness and self-management before, during, and after flood disaster must be taken into account.

According to the "Synthesis of Manuals on Community Flood Management in Bangladesh, India, and Nepal", in term of the preparedness process, people need to understand when flood is coming; and how intense it might be in terms of areas that will be affected as well as the depth inundation and the estimated duration of the flood event [16]. In the community approach, training for capacity building at individual and community is one of preparedness activities should be done. Prasad [17] mentioned that raising public awareness and capacity development training are important for the community. Shrestha et al., [18] added more to that disaster

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awareness must be created among people. Various awareness campaigns can be done to inform the community; such methods to influence people may include poster, brochures, song, drama, street drama, audio-visual methods, training and demonstrations, regular drills, promotion by local celebrities for example, singers, leaders and actors.

"The State Flood Emergency Plan" by [19] has suggested that in order to protect life, property and the environment, it is necessary to understand flood risks and potential health and medical impacts that community faces. There should be collaboration between emergency services and people in the community working together to ensure all the elements of preparedness. Community awareness and education are important for the effective response to the flood risk. Preparedness activities should include the regular exercise to test preparedness and flood emergency. The program flood preparedness can be designed in form of community education. The article "Disasters and Public Health Planning and Response: Chapter 6", mentioned that healthcare and public health preparedness measures associated

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to flood disaster must be tailored for each region according to the type of potential floods that may occur to the community and the populations that may be impacted [20]. An effective flood response should be tailored public education effort before, during and after the flood.

1.1.5 Theories applied to the Research

In order to provide appropriate intensive flood preparedness education program for the elderly living in the community, researcher must have better understanding of the study issue in particular settings. Researcher applies communication theory, risk communication and theory of planed behavior to the development of the program intervention. Corcoran [21] mentioned that if we cannot communicate, then it is very difficult to deliver messages to promote healthy choices. In health promotion, communication plays an essential role in the intervention program that aims to improve healthy choices. The effectiveness of communication happens when the audience has achieved, acted on or responded to a message. This communication process is through sender, message and receiver model. According to

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the “Understanding Risk Communication Theory: A Guide for Emergency Managers and Communicators”, risk communication is defined as a two-way process between the communicator(s) and the recipients of the messages [22]. It mentioned further that risk communicators engage with publics, focusing on how such communication could be most effective, how audiences process and act on messages. The effective communicators must take into an account how various publics perceive risk influenced by societal and cultural factors.

According to the theory of planned behavior, intentions and behaviors determined by attitude, subject norms, and perceived behavioral control [22]. Ajzen mentioned, “Interventions built on this model focus not only on influencing people’s attitude to the behavior and their perception of the outcomes but also on external influences on behavior” [22]. In order to develop flood preparedness education program, researcher combines rationales and theories to create a model. Researcher aims that with the intervention program, elders living in the community will be able to take an action and response accordingly through their knowledge in order to

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prevent, protect, against, and minimize physical and emotional damage that results from the flood. This is one of the major public health problems to be concerned.

1.2 Objective of the Study

- To describe elders' risk perceptions toward the 2011 flood disaster in Horathep, Taladnoy, and Kokyai Sub-districts, Saraburi Province, Thailand.
- To explore elders' experiences management of flood before, during, and after the 2011 flood disaster in Horathep, Taladnoy, and Kokyai Sub-districts, Saraburi Province, Thailand.
- To develop flood preparedness education program (FPEP) for the elderly living in Taladnoy and Horathep Sub-districts, Saraburi Province in order to increase their knowledge, positive attitude and proper practice/intention to practice toward flood preparedness before, during and after flood.
- To evaluate the effectiveness of the flood preparedness education program (FPEP) by assessing knowledge, attitude, and practice/intention to practice after the flood preparedness education program (FPEP) is given to the elderly.

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1.3 Research Questions

- How were the elders' risk perceptions toward the 2011 flood event in Horathep, Taladnoy, and Kokyai Sub-districts, Saraburi Province, Thailand?
- How were the elders' experiences on flood management before, during, and after the flood event in Horathep, Taladnoy, and Kokyai Sub-districts, Saraburi Province, Thailand?
- Does the flood preparedness education program effective in increasing knowledge, changing attitude and flood management behaviors of the elderly living in Taladnoy and Horathep Sub-districts, Saraburi Province, Thailand?
- What is the effectiveness of flood preparedness education program (FPEP) in term of knowledge, attitude and practice/intention to practice before and after the program among the elderly in the intervention group and the control group?

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1.4 Research Hypothesis

- Flood preparedness education program effective in increasing elders' knowledge on flood preparation in Taladnoy and Horathep Sub-districts, Saraburi Province, Thailand.
- Flood preparedness education program effective in changing elders' attitude toward better flood preparation in Taladnoy and Horathep Sub-districts, Saraburi Province, Thailand.
- Flood preparedness education program effective in changing elders' practice/intention to practice on flood preparation in Taladnoy and Horathep Sub-districts, Saraburi Province, Thailand.

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1.5 Operational Definitions

The following are terms used in the study. They are defined under the operational definitions for better understanding of the terms in the study.

Elderly: Persons both male and female aged 60 years and above living in Taladnoy and Horathep Sub-districts, Saraburi Province, Thailand.

Flood Disaster: Refers to the 2011 flood event that happened in Thailand and expected severe flood in the future.

Flood Risk Perceptions: Refers to attitudes, and feelings all influence the thinking and judgment of elderly about the seriousness and acceptability of flood risk.

Flood Experiences: Refers to elder's experiences of flood management before, during, and after the flood.

Flood Preparedness: Refers to actions to prepare, prevent, protect, against, and minimize health and non-health related problems resulting from flood (e.g. preparation of basic needs, important documents, important contacts numbers or information; personal hygiene, accident and injury prevention, flood related diseases; and appropriate actions before, during and after flood); applied the definition from the Disaster and Public Health: Planning and Response [20]

Knowledge: Refers to knowledge related to the issue of flood preparedness before, during and after flood.

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Attitude: Refers to the elders' opinion of agreement, neutral, and disagreement concerning to flood preparedness before, during, and after flood.

Practice or Intention to Practice: Refers to the elders' practice or intention to practice regarding to flood preparedness before, during, and after flood.

Preparedness Education Program (FPEP): Refers to flood education program including the process of community meeting, community workshop and process development of flood preparedness manual booklet and flood preparedness education sessions.

The Effect of Flood Preparedness Education Program for the Elderly: Refers to an increase knowledge, positive attitude, and better flood preparation practice/intention to practice of the elderly.

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1.6 Variables in the Study

1.6.1 Independent Variable:

- Flood Preparedness Educational Program (FPEP)

1.6.2 Dependent Variable:

- Score of Knowledge change (Increase knowledge)
- Score of Attitude change (Positive attitude)
- Score of Practice/Intention to Practice change (Proper flood management before, during and after flood).

1.6.3 Demographic Variables:

- Gender
- Age
- Education
- Marital Status
- Number of Child
- Economic Status
- Occupation
- Home Ownership
- Health Status

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1.6.4 Flood Conditions

- Source of Flood Information
- Evacuation
- Flood Duration
- Family Caretaker During Flood

1.7 Expected Outcomes

The purposes of this research are: to understand elders' risk perceptions, elders' experiences management of flood, and to increase knowledge, attitude and practice/intention to practice toward flood preparedness among the elderly living in the community.

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The expected of the study are listed below:

- The result of this study may help increasing the understanding of flood preparedness before, during and after the flood among the elderly living in the community so that loss of life and property can be minimized

- Flood preparedness education program will benefit elderly, elder's family members, community, or anyone who is interested in the research topic.

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1.8 Conceptual Framework

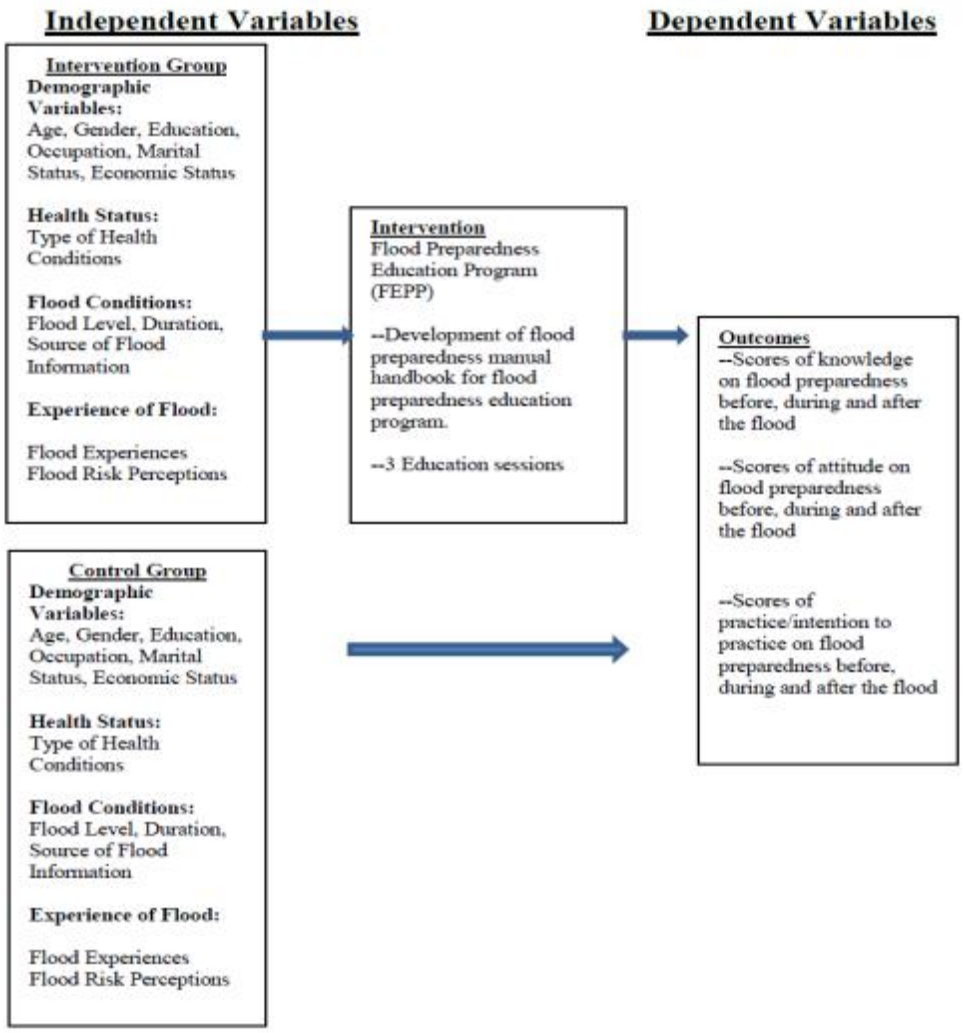

Figure 1: Conceptual Framework

Chapter II: Literature Review

2.1 Context of Natural Disasters in Thailand

The article “Emergency Management in Thailand: On the Way to Creating a More Systematic Approach to Disasters”, by Khunwishit & McEntire [23] reported that in the past Thailand has been considered a safe disaster nation due to very few disasters events. Due to this reason, Thais lack of disaster experience that prevented them from learning about the issues, building capacity and preparing for the next catastrophe that might occur. However, in 2004 the Indian Ocean Tsunami that devastated several southern provinces of Thailand changed risk perception of the Thais and governments at all levels. Although many international countries recognized as being effective in tsunami response and recovery, the disaster made the Thailand national government realize that the country needs to create more systematic approach to disaster management so that the next disaster can be dealt more effectively. Thailand is located in Southeast Asia bordered by Myanmar on the west, Laos on the north and east, Cambodia on the southeast, and Malaysia on the South. The Southern coast of Thailand is bordered by the Gulf of Thailand on the east and

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the Andaman Ocean on the west. Thailand is considered a tropical country with the diverse geographic features and locations of each region which make the country face different types of potential hazards.

The mountainous north region is often affected by severe winter weather which is influenced by high and dry mountains in China and Laos. The northern region is also affected by flash flood especially provinces that are located along the Phing River. The mountainous Mae Hong Sorn province is often affected by wild fires due to the dry weather in the winter season. The southern region is often faced with flash floods from heavy rain all year round especially Songkhla and Najorn Sri Thammarat provinces. The south part is also prone to tsunami and storm surges, especially the west side which is bordered by the Andaman Ocean where several active volcanoes of Sumatra Island are located. The central part of Thailand is plain and lowland which usually faces flash floods, especially during the raining season around June to October. Although floods, drought, severe winter weather, tsunami and storm surge are perceived as major hazards facing Thailand, the country is potentially affected by earthquake. Earthquakes

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occurred in the neighboring countries often causing minor damages to some provinces of Thailand.Khunwishit & McEntire [23] mentioned further that disaster awareness is growing concern among policy makers, academics, citizens; still most people in Thailand lack sufficient awareness, knowledge about disasters. Thais have no serious interest in learning on how to prevent or respond to disasters. Although Thai people usually think that the country is disaster-free, it happens that the numbers of disasters are rising. Such disasters can produce destructive impacts than anyone ever imagined. Thai Government needs to work harder to create safety culture and educate its people about disasters and coping methods.

2.2 The 2011 Flood Scenario in Thailand

Meteorological Development Bureau, Thailand [13] reported that in 2011, since mid-May Thailand was affected by rainfall and severe flooding in upper part. In June, there was heavy rainfall occurred in many areas throughout the month. It caused by the influence of the active Southwest Monsoon. In July, downpour rain continued in many areas resulting in widespread flooding in north and northeast parts. During August

to September, northern, northeastern, and central parts experienced flooding. Massive flooding persisted mainly in lower northern and central part of Thailand in October. Khunwishit & McEntire [23] reported that south of Thailand also affected by the 2011 flood. There was heavy rain resulted in flash flood and landslides in many areas. 10 southern provinces were covered by flood, affected 1,897,801 people in 564,973 households. The death due to this flood in the south of Thailand was 66 people. Surattani, Nakorn Srithammarat, Pattalung, Trang, Songkla, Krabi, Choomphon, Narathiwat, and Satun were severely affected by two destructive floods within 5 months. Sandman [24] reported that Thailand floods regularly, but the 2011 flooding that began in July has been Thailand's worst flood in at least five decades. He mentioned further according to Thailand Department of Disaster Prevention and Mitigation, it reported that Thailand experienced 76 flooding events from 2002 to 2009 which collectively injured 1,514 people, caused 1,011 deaths, cost 46.4 million baht in damage. In 2010, the flood killed 260 people which considered worst flood; but the

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2011 flood killed more than 600 people, and caused more than 600 billion baht in damage.

2.3 Health Impacts of Flood

According to the "Disaster and Public Health: Planning and Response Chapter 6"[20], flood is defined as "the excessive overflow of water onto normally dry land. The inundation of normally dry area caused by rising water in an existing waterway, such as a river, stream or drainage ditch which present in a long-term event than flashflood. It may last for weeks or longer. The chapter mentioned that numbers of flood disaster is growing worldwide due to variety of human and environmental factors. Factor related to human that contribute to flooding is the development of land used; increasing in numbers of populations and urbanization along water ways and shorelines may create more flood hazard to people. As the environmental conditions are altered, the flood risks are changed.

Weiwei et al., stated that floods are the most common disaster that can lead to morbidity and mortality throughout the world [25]. The impact of floods on human

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populations depends on locations of the area, as well as human demographics and characteristics of the environment [25]. He conducted a study that aimed to identify health impacts of floods and the underlying causes of health impacts associated of flood. He did extensive literature review, analyzed and identified common themes, findings, and expert reviews on the impacts of floods on health. The study concluded that health consequences of flood can be categorized as direct or indirect impact. Direct consequences are from direct exposure to the flood such as drowning, injuries, chemical contamination, and hypothermia. Indirect consequences are associated with the damage done by water such as infectious disease, malnutrition, and poverty-related diseases. The health consequences of flood can be described in three terms: immediate, medium-term, and long-term. The immediate impact happens when the flood is present; medium-term impact happens during the recovery phase about days to weeks; and long-term happens about months to years after the flood. Example of immediate health effects are drowning, injuries, electrical injuries, burns and explosions, hypothermia and disruption of health services. Secondary health effects

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are water contamination, carbon monoxide poisoning, communicable diseases (e.g. respiratory illness, animal displacement); and long-term health consequences effects are mental health, social disruption and related health issues. Weiwei et al., [25] mentioned, “Most flood-related morbidity and mortality are preventable through education, good floodplain management, and prediction-warning systems”. Identify and categorizing the health consequences of floods can help to the development of prevention, mitigation, and response strategies. It provides conceptual framework that may assist health disaster managers with planning, preparation, and response.

Assanangkornchai et al., [26] conducted a study that assessed the effect of flood on the mental health in Hat Yai. They did cross-sectional survey using structured questionnaire (GHQ) in Thai version on 590 respondents residing in four areas of Hat Yai. The results showed that 40% of respondents had a positive GHQ scores which mean that they are having a mental health problem. It showed further that there were significant associations between scores and the respondents’ perception of the severity of loss, the ability to collect possessions; also it showed negative respond to

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the flood. Assanangkorchai et al., concluded that flood have major impact on mental health of the community. The impacts are related to the perceptions of severity and loss; and the impacts are found greater in lower socio-economic and minority religious sub-groups [26].

Tunstall et al., [27] conducted a study on health effects of flooding in England and Wales. They established health measures on the health effects of flooding for residents in 30 locations by using GHQ-12 scale. The result showed that flood victims suffered long term mental health result of experiencing flood. Factor influencing health effects were divided in three sets: Flood event characteristics (such as depth, duration, frequency of flood, contamination of flood water), Socio-demographic variables (such as income, illness, awareness of flood risk and educational level), and factors associated with the recovery period (such as problems dealing with insurance and home builder, evacuation, and help received).

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2.4 Flood Preparedness Education Perspectives

"State Flood Emergency Plan" [19] mentioned that in order to protect life, property and the environment, it is necessary to understand flood risks that the community faces. According to "Synthesis of Manual on community Flood Management in Bangladesh, India, and Nepal", it describes flood preparedness that in order to begin the process of preparedness, people have to understand when flood come, how intense the situation might be in areas that will be affected, and the estimated duration of the flood [16]. Traditionally, people have been doing their own flood forecast by looking at the behavior of the rainfall, water levels in the area, behavior of animals. These methods are weak to forecast flooding [16]. Therefore, people have to combine their traditional knowledge with the information they receive from the media and community. Such method cannot be fully gasped by the ordinary rural people. People usually seek information from the community leaders or members of the community [16]. In term of flood preparedness education, the manual suggests that flood preparedness for the community approach should include the

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training for capacity building at individual and community levels. Managing flood preparedness by raising awareness in appropriate training is the most powerful tool for public awareness. Flood information makes people aware about the potential danger from the event. Information can be disseminated to the community in many ways such as regular informal discussion, distribution pamphlets, posters, raising awareness through mass media, or creating workshop at appropriate local levels involving community organizations with the assistance of local government.

Gissing & Opper [28] suggested that a key challenge to enhancing community preparedness for flooding is not only the development of community awareness, but ensuring ongoing effective community engagement to deliver key messages and address community concerns. Community education is vital; it ensures that the community is able to recognize environmental signals and response appropriately. Communication program should be accessible to the community and should be designed culturally and linguistically diverse to communities and to disability groups [28]. According to the “Associated Programme on Flood Management”, the article

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described further that key components of preparedness planning includes effective stakeholder participation, coordination among governmental and non-governmental agencies, early warning systems, public awareness and education [29]. Women and children should be included in education strategies as they are disproportionately affected by natural disasters. Shrestha et al., [18] suggested that raising community awareness; preparedness activities should include all level of the community including children, women, and older people. The activities should focus the training on evacuation to safe ground, safety measures, and preparing on the things people need to carry during an evacuation. Stimulation and demonstration are necessary for disaster preparedness; they may include orientations to provide general information on the plan.

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Lauren S. et al, [30] suggested that it is very important to promote self-reliance among the elderly. They said, “If the elderly have fewer resources, this does not equate with no resources”. Elderly persons can maintain the primary responsibility for caring themselves or called self-preparation. The article stated that educating the

elderly for preparedness and response is one of the greatest resources for elderly. Disaster checklists and other educational materials can be developed for distribution to the elderly, their family, and friends through social networks, community based service organization, and healthcare provider. The elderly should not be the only specific target of education. Their families should be involved during the emergency preparedness planning and education.

2.5 Disaster Preparedness Program Study

Karanci et al., [31] conducted a study a community disaster training program focusing on earthquakes, floods, and landslides in Qankin, Turkey, in 2002. The program covered mitigation, preparedness and response aspects of natural disaster management. 4,000 members living in the community participated in the training program delivered by 95 local trainers. The study aimed to evaluate the impact of participation of the program. 400 participants were randomly selected in the training and a comparable sample of 400 community members, who did not participate in any disaster training program, were surveyed. The initial phase of the training program was

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supported by the Governor in order to stress the importance of local participation and to recruit local people who would want to be trained to become voluntary local trainers. Booklets and ten-page simple brochure were distributed to adult members in the community who participated in the awareness. The handbook contained information on preparedness and mitigation measures based on similar previous publications. The results showed that participants in the training program had higher threat expectations and more preparedness behavior than ones who did not participate in the program. The result of the relationship of the variables in the study, disaster cognition, and actual preparedness behaviors showed that education, gender, being a participant in the training program and anxiety are important variables related to different kinds of disaster-related cognitions.

Chirico et al., [32] conducted a study on home safety and disaster preparedness in the elderly population. The research described that due to high rate of morbidity and mortality, fall prevention in the elderly has been a topic of various studies. The focus of this study was on home safety and disaster preparedness. It aimed to evaluate

the need for home safety modifications and to identify the extent of elderly people's knowledge and awareness of home safety and disaster preparedness issues. They used convenience random sample to recruit participants based on volunteer basis from the Vintage Center, a senior citizen center in Pittsburgh, Pennsylvania. 67 people were given informative sessions focused on disaster preparedness in the home and home hazards. The scores of pre and post-test were administered and analyzed by using paired t-test. To measure if the intervention is successful, they measured on a reduction in potential home hazard and by the amount of modifications made within the home. The results showed that the intervention clarified some misconceptions on home safety and disaster preparedness. The elderly gained more knowledge and awareness about home safety and disaster preparedness through the information sessions.

Terpstra et al., [33] conducted a quasi-experimental study on communication flood risk and risk perceptions. The aim of the study was to evaluate if the communication flood risk affect risk perceptions of participants. The study was done

in Netherlands which consisted on workshops and focus group discussions. The authors stated that in order to increase the effectiveness of the workshops, they developed a variety of activities that allow participants to encounter with flood risk management such as, visiting dike reinforcement projects and pumping stations, walking through flood plain, playing board games involving land use planning to decrease local flood vulnerability, attending lecture about flood, and listening to flood disaster stories. Flood risk perceptions were measured by using questionnaires pre and post-tests. The hypotheses of the study were (H1) workshop participants would show greater shifts in their flood risk perceptions compare with control group participants; and (H2) focus groups would rather produce the conditions for attitude polarization. The results showed that it can only provide modest support for these hypotheses, perhaps because of the mismatch between the sessions' content and the risk perception measures.

Joshi et al., [34] conducted a quasi-experimental study to evaluate the effectiveness of information booklet on knowledge about disaster preparedness. The

study was done in Pune city; and sample was selected according to non-probability purposive sampling consisted of men and women aged between 21-50 years. The aim of the study was to improve knowledge of people in the city by providing information booklet regarding disaster preparedness. Self-administered questionnaire was used to evaluate effectiveness of the information booklet on knowledge of people residing in the areas of Pune city. This is a quasi-experimental study using one group pre-test and post-test. The results of the study showed that based on the 60 samples participated in the study, 63.3% of the participants received information about disaster from television, 16.7% of the participants received information from radio, 6.7% of the participants received information from journal, the remaining received information from other sources. In term the information booklet, it showed that the booklet improved knowledge of people regarding disaster preparedness.

Yasunari et al.,[35] conducted an educational program on disaster preparedness for pregnant women. There were two groups intervention and control consisted of pregnant women from facilities. The samples were pregnant women in

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their second trimester of pregnancy. The aim of the intervention program was to increase awareness of disaster preparedness. The program consisted of preparedness, method of contacting families in times of disasters, receiving medical examination in times of disasters, things to prepare, evacuation, and preparing home safety. The questionnaire was administered twice to the participants in both groups. 226 members of the intervention group and 262 members of the control group; of these 99 in the intervention group and 104 in the control group were primiparous without disaster experience. The program was evaluated the effectiveness by comparing two groups. The result showed that among primiprious without disaster experience, the intervention was found in concerning awareness modification and behavior modification. The study suggested that an intervention effect was found among the pregnant women who took the programme, especially among primiparous without disaster experience.

Ronan et al., [36] conducted a study pre-test and pot-test with benchmarking design on youth preparedness for disasters. The study was to evaluate if children were

more knowledgeable and prepared for hazards, also rollout of a new tsunami warning system. The study found that a brief school education program, supplementing a larger community-wide effort, children reported a significant gains in preparedness indicators including increase knowledge as well as increase in physical and psychosocial preparedness. The study was based on the previous study done in a quasi-experimental study. Within groups effect sizes compared favorably with those from the previous experiment in this area used to benchmark current intervention-produced findings and produced hints that combining school education programs with larger community preparedness efforts can enhance preparedness. The researchers suggested, “Educations program are source of increases in disaster resilience in youth and their families”.

Fetihi et al., [37] conducted a study on earthquake awareness development program on 6 years old children due to Turkey has high level of earthquake risk They mentioned that it is necessary to raise awareness and provide information related to earthquake to preschool children; and raising awareness among little children will have

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significant influence from individual and social aspects for short and long terms. In order to evaluate the effect of the program, pre-test and post-test was done. The results showed that the program increase these children's awareness and knowledge on earthquake. They suggested more that with parent's participation in the program, the program will be able to continue outside the education environment.

Bistaraki et al., [38] conducted a study of a disaster training program on healthcare workers in Greece. Quasi-experimental design was used. Healthcare workers in the intervention group had 5 hours brief training course that focused on basic principle of hospital disaster management. The results showed that with the program, healthcare workers had improved their knowledge. They mentioned that the training course had a great benefit for the participants, brief educational intervention is beneficial.

2.6 The Use of Booklet in Disaster Preparedness

It is mentioned in the "Report of the Online Forum on Disabled and Other Vulnerable People in Natural Disasters" [39] that one of the communication tools for

preparedness is a booklet highlighted the specific needs of the type of disabilities and elderly which could be used as educational or training material. This booklet can help to educate people and sensitizes the general public as well. Joshi et al., [34] conducted a study to measure the effectiveness of the information booklet on knowledge about disaster preparedness. The resulted confirmed that information booklet improved knowledge of people regarding disaster preparedness. DCD's Disaster Planning Goal: Protect Vulnerable Older Adults [40] mentioned about handbook that it can be awareness tool to elderly. It should be designed to address issues such as medications, mobility, transportation, access to evacuation, and all concerns older adults in particular area. The guidebook should also explain basic emergency preparedness. Disaster Preparedness and the Chronic Disease Needs of Vulnerable Older Adults by [41] mentioned that handbooks are used as one of the tools for preparedness training. The handbook contains detailed recommendations on addressing the needs of vulnerable older adults in areas of the country during disasters.

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2.7 Theories apply to the Study

According to the "Theories of Behavior Change" by Communication for Governance & Accountability Program, theory of Planned Behavior developed by Ajzen& Fishbein [42] suggested that behavior is dependent on a person's intention to perform behavior. Intention is determined by attitude, subjective norms, and perceived behavioral control. This relationship is typically dependent on the type of relationship and the nature of the situation. Corcoran [21] concluded that main determinant of behavior is based on the person's intention to perform that behavior and intention by three factors:

1. Attitude to the behavior: the balancing of pros and cons of performing behavior or the risks/rewards they associate with the choice
2. Subjective norm: social pressure from significant others such as peers, media or family.
3. Perceived behavioral control: the perception that person has about their ability to perform the behavior.

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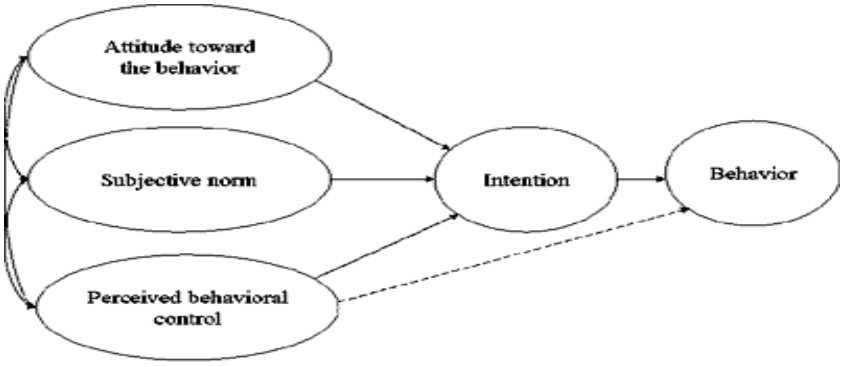

Source: Ajzen & Madden (1986).

Figure 2: Theory of Planned Behaviors Model

Morrow [43] mentioned that risk communication tasks have been defined into four general types 1) Information and education, 2) Behavior change and protective action, 3) Disaster warnings and emergency information and 4) Joint problem solving and conflict resolution. In health education, communication is really important. It has essential role in any action that aims to improve health [21]. Communication can be divided in to 5 categories. It is summarized below:

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Communication category	Example of communication medium
Intrapersonal	Internal communication (for example, what we think, when we listen to an innervoice)
Interpersonal	One-to-one, small groups, emails, telephone calls and other activities that allow personal listening and response
Organizational	Lectures, seminars, debates, meetings, memos, intranets, newsletters, workshops, displays
Community	Local radio, talks, seminars, debates, local newspapers, bill boards, bus wraps, health fairs
Public/Mass	Newspapers, television, digital television, national radio, Internet, CD-ROMs, mobile phones

Figure 3: Theories and models in communicating health messages [21].

Croft [44] suggested Berlo's SMCR Model in his article. The model was developed by Berlo (1960). The model identifies controlling factors for four identified elements of communication: source, message, channel, and receiver. The model is shown below:

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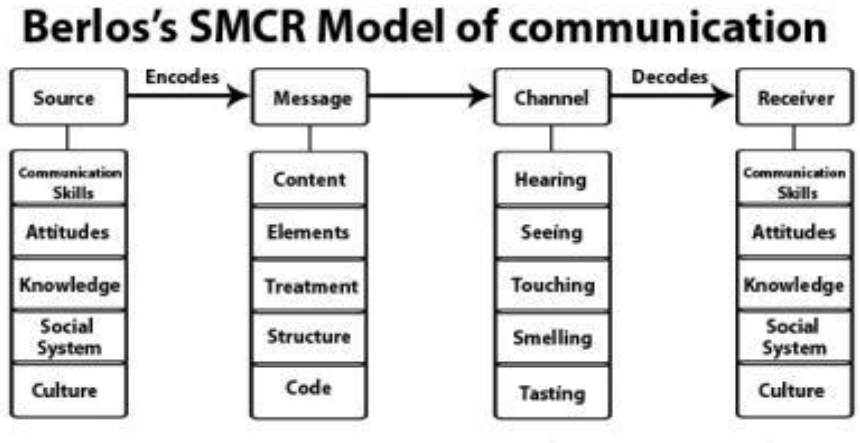

Figure 4: Communication Theory [44]

2.8 The Concept of Qualitative Methods Used in the Study

Ormrod & Leedy [45] mentioned that "qualitative researchers often use multiple forms of data in any single study. Researchers might use observations, interviews, objects, written documents, audio visual materials, electronic documents, and anything that can help them answer their research questions". Creswell [46] stated that "researchers do not tend to use or rely on questionnaires or instruments developed by the other researchers; they themselves are the ones who actually gather the information. Qualitative researchers tend to collect data in the field or the site where participants experience the issues or problem under the study. In the natural

setting, the researchers can have face-to-face interaction over time". Phenomenological study is one of qualitative research designs. A phenomenological study is a study that attempts to understand people's perceptions, perspectives, and understanding of a particular situation [45]. Phenomenological researchers depend almost exclusively on lengthy interviews with a carefully selected sample of participants; typically sample size is 5-25 individuals, all of whom who have had direct experience with the phenomenon being studied [46].

According to Babbie [47], Interview is an alternative method of collecting survey data. Rather than asking respondents to read questionnaires and enter their own answers, researchers send interviewers to ask questions orally and record participants' answers. Interview is typically done in a face-to-face encounter. Creswell [46] mentioned further that interview is useful when participants cannot be directly observed; participants can provide historical information; and this type of technique allows researcher to control over the line of questioning. The aim of this informal interview is to explore information from research questions set by the researchers in a

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natural interaction between interviewer and interviewee. This interview is unstructured and generally open-ended questions that intends to elicit views, opinions, and experiences from the participants on the 2011 flood disaster. This type of the interview can be beneficial to the researcher because it lacks of structure questions, which allow for flexibility in the nature of the interview. With the informal approach, the researcher does not ask any specific types of questions, but rather relies on the interaction with the participants to guide the interview process [48].

Boyce & Neale [49] described in-depth interview that it is a qualitative technique involving conducting intensive individual interviews with a small number of people to gain detailed information about a person's thoughts and behaviors. In-depth interviews should be used in place of focus group if the potential participants may not be included or comfortable talking openly in a group. The aim of in-depth interview is to explore better understanding and to gain better information. It can lead to increase insight into people's thoughts, feelings, and behaviors of the participants regarding to the flood disaster, risk perceptions, and elderly self-care management during the

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event. This type of interview encourages each key informant to talk at length about the topic. The researcher can explore in-depth details about the issues that participants in the informal interview do not reveal in the interview. In-depth interview guideline is prepared for the people being interviewed. Snowball sampling defined as a technique for finding research subjects. One subject gives the researcher the name of another subject, who in turn provides the name of a third, and so on [50]. Omrod & Leedy [45] mentioned that to conduct a focus group discussion, the researcher gathers several people usually no more than 10 or 12 to discuss a particular issue for 1-2 hours. A moderator introduces the issues to be discussed, make sure no one dominates the discussion, and keep people focused on the topic. In this study, the aim of focus group discussion in this study was to gain more understanding about the study issues; let participants discuss, exchange ideas and experiences about the topic. The guideline was carefully developed based on the research questions.

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Chapter III: Methodology

3.1 Research Design

This chapter described research methodology including research design, study area, study period, study population, inclusion and exclusion criteria, sampling technique, sample size, validity and reliability, data collection, data analysis, ethical consideration, and limitation. In order to provide Flood Preparedness Education Program for the elderly living in the community, mixed methods qualitative and quantitative were used in this study. Qualitative method was used in the first phase, methods including informal interview, in-depth interview, and focus group discussion. Content analysis was used to analyze qualitative data. The information from qualitative data collection was used to develop the flood preparedness education program. Understanding qualitative information was the initial step toward implementing an effective intervention program for the elderly that suitable for the particular culture and context of the community. Quasi-experimental study was used to measure change of the knowledge, attitude, and practice/intention to practice scores of the elderly before and after the intervention program. There were two groups: intervention

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and control. Comparing mean scores pre-test and post-test was done in each group and between groups. Statistical analysis software will be used to analyze the change scores of intervention and control groups. Details of methodology in this study are described in the following.

3.1.1 Phase I: Qualitative Study

In this study, the researcher employed interview techniques in the form of informal interview, in-depth interview, and focus group discussion. The interview was done in the community where participants experienced the flood event. Informal interview was employed as the first approach in order to gain information pertaining to participants' experiences and viewpoints about the study topic. Then in-depth interview was conducted to explore better understanding or clarification of what of each participant was experiencing at the situation. Focus group discussion was used to determine interviewed people's experiences and opinions, and exchange ideas on the issues. A qualitative study was employed with 17 participants: 10 elderly people who

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had lived through the flood; 3 family members of these elderly people; 2 directors of the local health promoting hospitals; and 2 local village health volunteers.

3.1.1.1 Informal Interview:

In this study, informal interview technique was used to interview director of health promoting hospitals. Questions to be asked in this type of interview was related to flood experiences, risk perception toward the 2011 flood disaster, and self-care management of the elderly during the flood. Field note was used as recording material for the study. Each interview was performed in health promoting hospital. The interview took about 35-40 minutes for each interview. However this type of interview questions is unstable or unreliable because of the inconsistency in the interview questions [46]. Further techniques, in-depth interview and focus group discussion were employed to gain more understanding and explore more information of the study issues.

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Criteria for selecting the participant in the Informal Interview:

Director of Health Promoting Hospitals

- Living in the selected study areas more than 2 years.
- Participants who had experience in the 2011 flood disaster.
- Participants who wish to participate in the study.

3.1.1.2 In-depth Interview:

In this study, snowball technique was applied for selecting the key informants. In-depth interview was conducted local health promoting hospital and elder's home. The technique was employed to interview the elderly living in the community, directors of health promoting hospitals, village health volunteers and family caretakers. The interview guideline was carefully developed based on the research questions (See Appendix: Interview Guidelines). The interview was done in three sub-districts: Horathep, Taladnoy and Kokyai. It took about 45-60 minutes for each interview; and five participants were interviewed. When hearing the same information from a number of key informants, the researcher would stop the interview.

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Criteria for selecting key informants are:

Elderly

- Elderly aged 60-80 years
- Living in the selected study areas more than 2 years.
- Had experience in the 2011 flood disaster.
- Participants who wish to participate in the study.
- Participants who are able to communicate with others
- Participants refer from previous interviewee

Village Health Volunteers

- Living in the selected study areas more than 2 years.
- Participants who had experience in the 2011 flood disaster.
- Participants who wish to participate in the study.

Elderly family caretaker

- Living in the selected study areas more than 2 years.
- Participants who had experience in the 2011 flood disaster.

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- Participants who wish to participate in the study.

Director of Health Promoting Hospitals

- Living in the selected study areas more than 2 years.
- Participants who had experience in the 2011 flood disaster.
- Participants who wish to participate in the study.

3.1.1.3 Focus Group Discussion:

Omrod & Leedy [45] mentioned that to conduct a focus group discussion, the researcher gathers several people usually no more than 10 or 12 to discuss a particular issue for 1-2 hours. A moderator introduces the issues to be discussed, make sure no one dominates the discussion, and keep people focused on the topic. In this study, the aim of focus group discussion in this study was to gain more understanding about the study issues; let participants discuss, exchange ideas and experiences about the topic. The guideline was carefully developed based on the research questions (See Appendix: Interview Guidelines). The participants for the focus group discussion were elderly and elders' family caretakers. Focus group discussion composed of three

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groups from three sub-districts: Horathep, Taladnoi and Kokyai; and approximately 4-6 participants per groups. Participants were asked about their experiences toward the flood event, their risk perceptions; and how elders took care of themselves before, during, and after the flood. Time of the focus group discussion was about 45-60 minutes.

Procedure of the focus group discussion is in the following:

- Welcome the elderly and elders' family caretakers as they arrive but avoid talking about the topic of the focus group (5-10 minutes).
- Introduce myself and explain the purpose of the focus group to participants (5-10 minutes).
- Begin with a warn-up question before moving on to the main issue. Ask each participant to answer, and briefly summarize his or her response (10-15 minutes).
- Introduce the main topic discussion, and guide the discussion using prepared questions (10-20 minutes).

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- Allow each person time to answer and discuss (45-60 minutes).
- Summaries the main points discussed (10 minutes).
- Thank you participants for their participation.

Criteria for selecting participants are:

Elders' family caretakers

- Living in the selected study areas more than 2 years.
- Participants who had experience in the 2011 flood disaster.
- Participants who wish to participate in the study.

Elderly

- Elderly aged 60-80 years
- Living in the selected study areas more than 2 years.
- Had experience in the 2011 flood disaster.
- Participants who wish to participate in the study.
- Participants who are able to communicate with others

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3.1.2 Phase II Quantitative Study

For quantitative study, quasi-experimental study was used to evaluate the effectiveness of the Flood Preparedness Education Program. Creswell [46] mentioned that in quasi-experimental, the researcher uses control and experimental groups in which the technique is suitable for the community setting. In this study, the researcher used control group which was placed in Kokyai sub-district and experimental group which was placed in Taladnoy and Horathep sub-districts. Samples from Taladnoy and Horathep were combined into one group of intervention. The intervention involved using two groups pre-test and post-test for each group; and pre-test and post-test between groups design. The education program was done once a month, and ran for three months. The follow-up was done on the 3rd and 6th month. Monitoring was performed each month during the follow-up. The reason for planning 6 months intervention was because behavior tends to change within the next 6 months [51]. Baseline assessment and process development were completed before starting the intervention.

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The following is the intervention design for both intervention and control groups:

Intervention Group:

(O1)------X1-------X2-----------X3------(O12)-------------------(O13)

Control Group:

(O2)----------(O22)----------(O23)

X1, X2, X3: Represents given flood preparedness education program (FPEP) each month for three months.

O1: Pre-test of the intervention group.

O12: Post-test follow up 1 of the 3rd month of the intervention group.

O13: Post-test follow up 2 of the 6th month of the intervention group.

O2 : Pre-test of the control group.

O22: Post-test follow up 1 of the 3rd month of the control group.

O23: Post-test follow up 2 of the 6th month of the intervention group.

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3.1.2.1Project Procedure and Preparation

Researcher actively contacted and cooperated with the directors from health promoting hospitals, community leaders, village leaders, village health volunteers and other key persons in the community in three sub-districts: both for the intervention group and the control group. For the intervention group, researcher recruited research teams from the community. The rapport was built up with the people and research team persons in the communities. Training of the team persons was completed for the following objectives

The objective of training research team persons:

- To train research team persons for good interpersonal communication and facilitating skill which in turn building up the self-efficacy for the research.
- To produce effective research terms persons in order to organize and assist the researcher.
- To produce effective community meeting among researcher, research team persons and people in the community.

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The research team persons participated in 2 days training; and they were tested after the training session to ensure that these team persons had mastered study content and could deliver purpose of the researcher to the study.

3.1.2.2 Establishment of the flood preparedness manual booklet for the flood preparedness education program

Before starting the education program, a meeting focused on orientating the involved people in the community was employed in order to understand the methods and benefits of the research study. Meeting with the key persons in the community was carried out several times for the establishment of the education program and the designing of the handbook materials. The program key persons in the meeting were:

- Directors of health promoting hospitals
- Health personnel from health promoting hospitals
- Community leaders
- Village Health Volunteers
- Health personnel from the Ban Moh district hospital
- Representative of elders living in the community

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- Representative of family caretakers living in the community
- The pictorial drawer of the manual booklet recruited within the community

The aim of community meeting was to explain the purpose of the study, to gain better relationship among key persons, to obtain their support and cooperation for the successful implementation of the program. The discussions for the development of the elderly flood preparedness manual booklet were performed several times with the key persons in the community. The discussions were about suggestions and understanding insight of the knowledge, attitude, and practice of the elderly in the community toward flood preparedness. The drawer, who contributed his pictures in this booklet, was recruited from the community. The aim of getting community members to involve with the study and education material (flood preparedness manual booklet) was to create community capacity building and encourage their contributions to the community; so that they could participate as a part of this community study. The flood preparedness manual booklet was developed in culturally and locally appropriateness for the elderly and general population; and it

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was printed in Thai language. The handbook was read by the researcher team, elderly, village health volunteers, health personnel for the clarity, cultural appropriateness, and language used before the printing production. The researcher made sure what reading level was suitable for the elderly by using pilot test with the target population. The flood preparedness manual booklet was reviewed and revised before distributing to the elderly

3.1.2.3 Intervention Program Design

The intervention was conducted at the local temple (Jun Sua Temple) at Horathep sub-district for two sessions. The third session was conducted at Horathep health promoting hospital. The intervention was conducted once a month, and ran for three months. The follow ups were performed at the 3rd month and 6th month. During the intervention, after giving the education program to the elderly; there were small quizzes session regarding to flood preparedness lesson learned for the elderly. The aim of giving quizzes was to make sure that the elderly gain some knowledge and understanding the materials after the education intervention was given; and to make

sure that the way of giving education program worked well with the elderly. The quiz questions were similar to the pre-test and post-test questionnaires; but the quizzes were shorter, and the numbers of questions were reordered. This technique would help avoiding recall bias to the study. Questionnaires related to knowledge, attitude and practice/intention to practice of the elderly toward flood preparedness education were used to measure change scores. The flood preparedness education program was provided to the intervention group. The intervention program was not provided to the control group during the study. However, after the program completed, the researcher provided education program twice including: Health education program regarding to nutrition for the elderly with chronic diseases and prevention, and Flood preparedness education program using flood preparedness manual booklet for the elderly in which all type of age group was welcomed. The flood preparedness manual booklets were distributed to the elderly and others who participated in the program. Furthermore at each activity session, elders, their family members, health promoting hospital staffs and researcher had lunch together along with gaming and gifts giving activities.

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3.1.2.4 Educational Program

The researcher actively contacted with the director of health promoting hospitals, community leaders and key persons in the areas. Rapport was built up with the people in the community. There were workshops on flood preparedness education program in the community with the collaboration of community leaders, directors from health promoting hospitals, village health volunteers, program speakers, elderly persons, researcher, and researcher assistants. In workshop phase, researcher presented baseline data to the community. Researcher and community members discussed some ideas on designing appropriated flood preparedness manual booklet and appropriate education program for the elderly in the community. The manual booklet was used as education material in the program. The booklets were distributed to elderly members in the intervention group. Elderly people were educated once a month on flood preparedness, self-care before during and after the flood. In order to achieve the goal of the education program, there were 3 education sessions; a session per month. Each village health volunteer was responsible for 5-10 elderly. Each session

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took about half day including activities and lunch. At the end of giving education, focus group discussion was conducted with village health volunteers and some elderly for evaluating their problem, satisfaction, and suggestion of the program. Training of village health volunteers to fill up questionnaires was done by the researcher and researcher assistants. Village health volunteers were chosen according to the following criteria: able to read and write, have motivation and interest in participating activities, and have free time to participate in the study. Research assistants were trained before engaging to the study in order to increase good communication skills between the elderly and researcher assistants. The brief educational materials and details are presented as follow:

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Month	Purpose	Contents	Evaluation
1	To provide knowledge in regards to important actions of what to do; what to prepare; and important emergency contact number in time of flood disaster. Duration: 8:30am- 12:00pm	Important actions to do -check and update the flood condition in your area. -Learn about safety route in term of evacuation -Actions to do in term of before, during and after the flood. -Prepare basic needs (e.g. dry food, medicine, first aid kit, walking aid for the elderly, cleaning product, flash light, -Prepare important documents such as identification card, housing registration, medical record, book bank, insurance registration.	Quiz

		-Know important contact numbers	
2	To provide knowledge in regards to diseases, injuries and accident prevent that come with flood. Duration: 8:30am- 12:00pm	-Diseases that come with flood disaster (Leptospirosis, Diarrhea, Conjunctivitis/Eye Infection, Cold, Stress and Depression. -Injuries and accidents prevention (falls, cuts and wounds) -Personal hygiene (hands washing before meal, washing body parts with soaps, do not wash cooking utensils in flood water) -Emphasize on previous materials from the first session.	Quiz

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3	To provide knowledge in regards to evacuation, safety measures, and preparing the things older people need to carry during an evacuation. To evaluate elders' knowledge, attitude and practice/intention to practice after the flood preparedness education program was given to the elderly in the 3rd month. Duration: 8:30am- 12:00pm	-The importance of evacuation when needed. -What to bring with them during an evacuation. -Emphasize on previous materials from the first and second session.	Question naires
6	To evaluate elders' knowledge, attitude and practice/intention to practice after the flood preparedness education program was given to the elderly in the 6th month.		Question naires

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3.2 Study Area

The areas of the study were Tadladnoy and Horathep sub-districts, Aumphur Banmoh, Saraburi Province. The province is located in the central region of Thailand. The characteristics of the two areas are rural settings. Most of the lands are used for farming. There are 8 villages in Taladnoy sub-district; and 8 villages in Horathep sub-district. Researcher purposively selected these two areas because there are quite numbers of elderly residing in the community; and the areas were affected by the 2011 flood disaster. The study area for the intervention group is similar to the area of the control group in term of the 2011 flood condition, geographical conditions and population being studied.

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Figure 5: Location of the study area

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There are 6 villages in Taladnoy sub-districts including:

Moo 1	Ban Kokkadaeng
Moo 2	Ban Lokkadaeng
Moo 3	Ban Donsomrong

Moo 6	Ban Klongnum
Moo7	Ban Kokmakham
Moo 9	Ban Krua

There are 8 villages in Horatheo sub-district including:

Moo 1	Ban Donthong
Moo 2	Ban Donthong
Moo 3	Ban Tonnong
Moo 4	Ban Kokkum
Moo5	Ban Junsua
Moo 6	Ban Kokkum
Moo 7	BanSameron
Moo 8	Ban Klongkradone

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Each year, there is always flood at Moo 8 Horathep sub-district (Director of Horathep Health Promoting Hospital). In term of the impact of the past flood disaster in 2011, Horathep was affected by the flood more than Taladnoy. The water level in the Horathep area was high, approximately 1.5 meters and above. However, Taladnoy is still in the risk area of being flooded. Many elderly living in the areas had a difficult time coping with the disaster [15]. In order to provide the Flood Preparedness Education Program, the areas that were affected by the flood disaster and at risk of being flooded would be appropriate to select for the study.

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Figure 6: An example of the geographical area of Taladnoy sub-district (Source: Taldnoy Health Promoting Hospital):

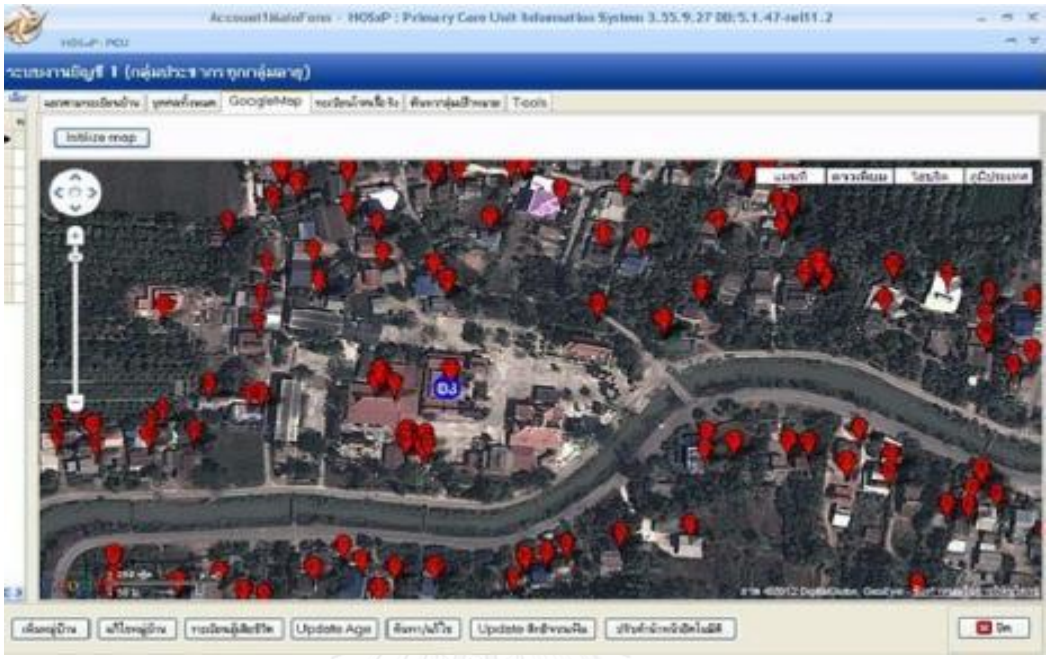
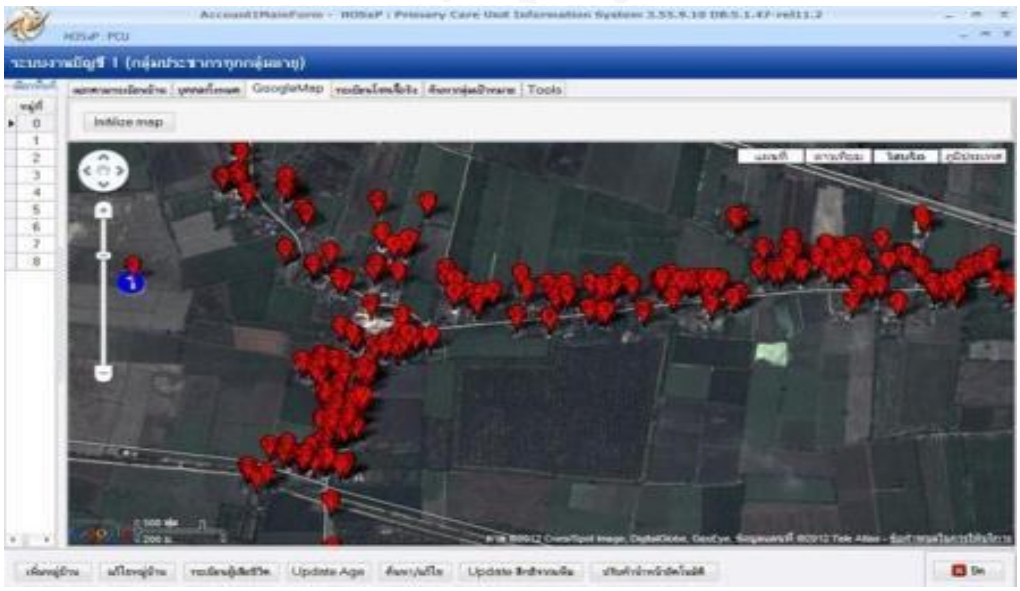


Figure 7: An example of the geographical area of Horathep sub-district (Source: Horathep Health Promoting Hospital):



3.3 Study Period

This study began in the beginning of May 2012 to August 2014. The study process included quantitative and qualitative methods. The process involved community meeting, community workshops, baseline information, the development of the flood preparedness manual booklet, the intervention of education program sessions, and follow ups at 3rd month and 6th month.

3.4 Study Population

There are approximately 599,524 populations residing in Saraburi Province, comprising of 69,807 people aged 60 years and above that about 11.64% of all populations [52]. In term of selected areas, numbers of elderly according to the two health promoting hospitals shows approximately 4,610 populations residing in Taladnoi, aged 60 years and above are 790 people comprising of 17.1% of all Taladnoy's population; and 1,665 populations residing in Horathep, aged 60 years and above are 294 people comprising of 17.6% of all Horathep's populations. These two districts are becoming aging society.

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3.4.1 Target Population

The target populations were divided into two groups: qualitative and quantitative groups. For the qualitative group, directors of the health promoting hospitals, village health volunteers, elderly, and family caretakers were included in the study. For the quantitative group, elderly aged 60 years and above were included in the study. The criteria of the study population are through the following:

3.4.1.1 Criteria for Selecting Participants Qualitative Study

Omrod & Leedy [45] mentioned that in qualitative study, your samples depend on what research questions you want to answer. They stated, “If you want to draw inferences about an entire population or body of objects, then you must choose a sample that can be presumed to represent that population or body. More often, qualitative researchers are intentionally nonrandom in their selection of data sources. Instead, their sampling is purposeful in which they select those individuals or object that will yield the most information about the topic under investigation”. To achieve the purpose of the study, the target population of the study not only encompasses

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the elderly in the sample community, but also the community people such as directors from health promoting hospitals, village leaders, village health volunteers and family caretakers. To answer research questions regarding to the flood event, risk perceptions, and elderly self-care before, during and after the flood, these community people were keys contribution to the study. Once information was saturated, the researcher stoped asking for more information. There were no limited numbers of participants participating in the qualitative study; but there were criteria for selecting key informants.

Inclusion Criteria:

- Directors from health promoting hospital must have worked in the area more than 2 years. .
- Village health volunteers must have worked in the area more than 2 years.
- Village health volunteers is literate
- Village health volunteers is accepted by the community

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- Village health volunteers must have free time working for the program.
- Elderly persons must experience during the 2011 flood disaster.
- Family caretakers must experience during the 2011 flood disaster.

Exclusion Criteria:

- Participants who are unwilling to join the study.

3.4.1.2 Criteria for Selecting Participants Quantitative study

For the quantitative study, the researcher employed simple random sampling technique to select elderly participants into the study. Before selecting the elderly to the intervention, they were selected based on the criteria set by the researcher.

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Inclusion Criteria

- Elderly Aged 60 and above.
- Elderly who experienced the 2011 flood
- Currently living in Taladnoy and Horathep sub-districts, Saraburi Province, Thailand at least 1 year

- Able to understand and speak Thai
- Able to communicate with others
- Willing to participate in this study

Exclusion Criteria

- Elderly who have hearing impairment
- Elderly who have mentally problem
- Elderly who are unable to communicate
- Elderly who are unwilling to participate

3.5 Sampling Technique

For the qualitative study, purposively selected was employed to select participants; and the selection criteria was based on the criteria set by the researcher. The target populations were key individual who could provide rich information for the study. Snowball sampling technique was used to select participants for the in-depth interview. For the quantitative study, the selection of the participants was based on the inclusion and exclusion criteria. Villages were grouped with the combination of

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characteristics. Elderly participants were recruited based on their voluntarily to the intervention, and simple random sampling was chosen out of the group of the elderly.

3.6 Sample Size

The sample size of the elderly was calculated by using STATA program:
Reference: "Effectiveness of Information Booklet on Knowledge about Disaster Preparedness." [34]

Expected 25% difference in knowledge between groups

P1 = .817

P2 = .567

Power = 80%, α = 0.05

Sample size for both group = 61 add 30% expected missing follow up (18)

Sample size for each group = 80

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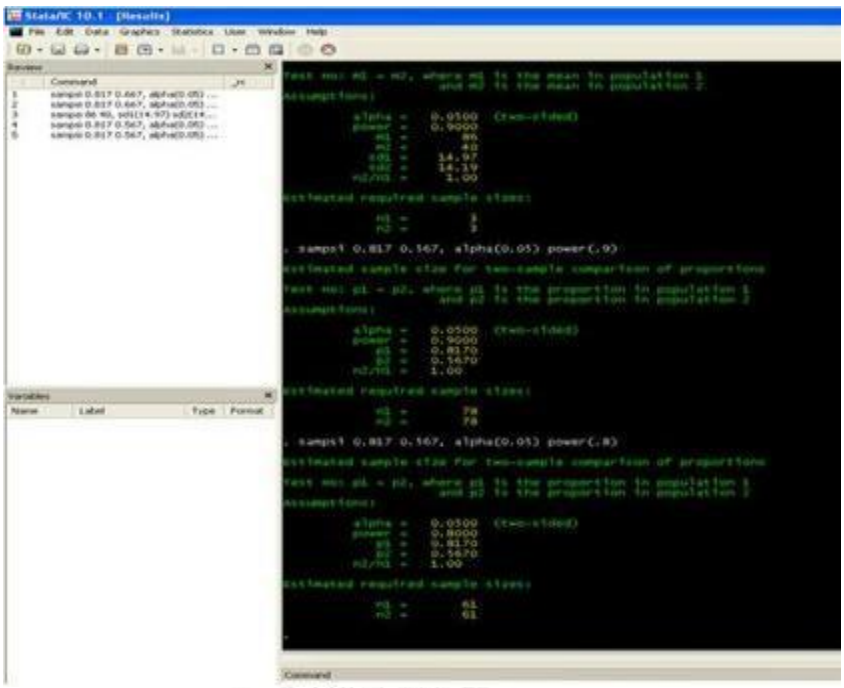

Figure 8: The sample size of the elderly was calculated by using STATA program:

3.7 Measurement and Tools

Questionnaires were divided into two parts including for qualitative and quantitative purposes. For the qualitative study guidelines were used in the process of interviewing key informants. The questions were about participants' experiences and their risk perceptions regarding to the 2011 flood event (See Appendix B: Interview Guidelines). For the quantitative, the questionnaires knowledge, attitude and practice/intention to practice were developed from the communication theory and

theory of planned behavior [21] (See Appendix A: A General Information and Knowledge, Attitude and Practice/Intention to practice Questionnaires)

Part 1: Qualitative Study

- Guideline for informal and in-depth interviews
- Guideline for focus group discussion

Part 2: Quantitative Study

- Demographic Characteristics

This section obtained a general characteristic of the participants' information including gender, age, education, marital status, number of child, family caretakers, home ownership, economic status, occupation, flood conditions including source of flood information, evacuation, flood duration, and family caretaker during flood.

- Knowledge, Attitudes and Practices Questionnaires

This section contained total of 61questions in order to assess the elders' knowledge, attitudes and practices on disaster preparedness. Knowledge

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questionnaires consisted of 26 questions; attitude questionnaires consisted of 15 questions; and practice/intention to practice questionnaires consisted of 20 questions.

- Knowledge questionnaire on flood preparedness practices before, during and after the flood.
- Attitude questionnaire on flood preparedness practices before, during and after the flood.
- Practice/Intention to Practice questionnaire on flood preparedness before, during and after the flood.

3.8 Validity and Reliability

3.8.1. Validity

Ormrod & Leedy, [47] described content validity in that content validity is the extent to which a measurement instrument is a representative sample of the content area being measured. A measurement instrument has high content validity if its items or questions reflect the various parts of the content domain in appropriate proportions and if it requires the particular behaviors and skills that are central to that domain. In

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this study, questionnaires were checked by the experts. Three experts on the elderly and natural disaster reviewed the contents of the questionnaire before it was used in the study.

3.8.2 Reliability

A reliability coefficient is often statistic of choice in determining the reliability of the test. The coefficient merely represents a correlation, which measures the intensity and direction of a relationship between two or more variables. Cronbach's alpha is the most common form of reliability coefficient. Cronbach's alpha should be .70 or higher to retain an item in a scale. The researcher conducted a pretest or the tryout of the research tools that was translated from English version into a Thai version. To obtain the accuracy of the questionnaires, the pretest was carried out of the sample group, which concluded of similar characteristics. This pretest was done in Lumluka District, Pathumthani Province among 30 elderly who had flood experiences. The reliability Cronbach's Alfa Coefficient of questionnaires was 0.78.

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3.9 Data Collection

The process of data collection in this study was done by the researcher submitting letters of request from the Dean of the College of Public Health, Chulalongkorn University, to the Director of Provincial Health Office in Saraburi Province and the Director of District Health Office for permission to collect data. The researcher contacted and coordinated with the Chief of the Health Center or health officers in the Sub-District Health Center, community leaders, and village health volunteers to find out the address of the respondents. The researcher collected the data from the participants in selected study areas from both qualitative and quantitative techniques. The researcher checked the completeness of the recorded information, field note, questionnaires after each study. Data collection continued until the information is obtained. The questionnaires were verified for data analysis.

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3.10 Data Analysis

3.10.1 Qualitative Analysis

In this study, the data was obtained from informal interview, in-depth interview, and focus group discussion. The interview and discussion were recorded by voice recorder and field notes. Content analysis was used to analyze the qualitative information [46]. The researcher organized and prepare the data for analysis involving transcribing interviews, scanning material, typing up field notes according to the information. Then analyzed the source of information into form of stories, sentences, or individual words and categorized them. Researcher employed triangulation [46] "multiple data sources converge onto consistent conclusion", by asking multiple key informants in order to check the consistency of the information. The researcher translated the contents of the study into English. Contents were checked for consistency before finalization.

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3.10.2 Quantitative Analysis

The questionnaires were coded before entering to the database and analyzed by using the statistical package for Social Science (SPSS Version 17) for window.

Descriptive analysis for general characteristics was expressed as mean, standard deviation (SD), frequency and percentage. Statistical test was performed with a 95% confidence interval and p-value < 0.05 considered as statistical significant. Chi-square, Fisher's exact test, was used to compare the general characteristics of participants between both the group of the intervention and the control. Flood preparedness knowledge, attitude and practice/intention to practice scores were categorized into three parts: high, moderate and low. The cutting point based on Bloom rating scores criteria was described as high level (more than 80%), moderate level (between 60%-80%), and low level/need improvement (less than 60%) [53]. For scoring part of the knowledge, participants responded with "yes", "no" or "do not know"; yes response was scored with 1-point and no and do not know were scored with 0-point. Knowledge consisted of 26 questions. Each question considered 1 point. The range of possible scores for knowledge was 0-26. It was categorized as (Poor knowledge/Need improvement: ≤16, Moderate knowledge: 17-21 and Good knowledge: 22-26). For attitude, it consisted of 15 questions. Participants responded with "agree", "do not

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agree" or "do not know". Positive responses were scored with 2-points, neutral 1-point and negative responses 0-point. The range of possible scores for attitude was 0-30. It was categorized as (Negative concern attitude ≤18, Neutral concern attitude 19-24 and Positive concern attitude 25-30). For practice/intention to practice, it consisted of 20 questions. Participants responded with "yes", "no" or "do not know"; yes practice responses were scored with 1-point, no practice or do not know responses were scored with 0-point. The range of possible scores for practice was 0-20. It was categorized as (Poor practice/Need improvement ≤12, Moderate practice 13-16, and Good practice 17-20). Independent t-test was used to analyze mean scores between groups before and after the intervention. Pair samples t-test was used to analyze mean score within each group. Repeated measure ANOVA test was used to compare the difference scores of baseline, 3rd month and 6th month follow up between two groups.

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3.11 Ethical Consideration

This study was approved by The Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University Protocol No 034.1/56. The study process was explained to the participants before the study. They received both written and verbal information before they agreed to participate. There were no major risks anticipated to the participants in the study. They had the right to refuse to participate in the study. It was made it clear that participants could withdraw from the study at any time. They were assured that their decisions to discontinue would not affect to people or the group. Their information was kept confidential

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Chapter IV: Results

4.1 Results

This chapter presents the findings including analysis and interpretation of the data obtained through both qualitative and quantitative methods. The results are divided into three sections: 1. Qualitative findings; 2. Quantitative findings; and 3. Survey feedback of the flood preparedness manual booklet of the elderly. Qualitative methods were performed in the first phrase of the study. Key informants selected from three sub-districts: Taladnoy, Horathep and Kok Yai were interviewed using informal interview, in-depth interview and focus group discussion. The aim of using qualitative methods was to explore elders' risk perceptions and their experiences on flood management before, during and after the 2011 flood. The second phrase, quantitative method using quasi-experimental study design, was used to assess the effect of the flood preparedness education program (FPEP) among the elderly living in community. Two sub-districts including Taladnoy and Horathep were selected for the study area of the intervention group; and Kok Yai sub-district was selected for the study area of the control group. Pre-test and post-test design was used to measure the change of

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knowledge, attitude and practice/intention to practice after receiving the intervention program at baseline, 3rd month and 6th month. Final section reported the survey feedback regarding to the usefulness of the flood preparedness manual booklet of the elderly. The survey was performed after the 6th month follow up. The results are presented in the following sections.

4.1.1 Section I: Qualitative findings

Informal, in-depth interviews and focus group discussion were used to describe and understand elderly people's experiences of the flood in order to provide some extra detail and context for the quantitative data. We interviewed the elderly people who experienced the 2011 floods first-hand in order to get their direct experiences of the flood and their perceptions of the services provided for them and any recommendations for future services. We interviewed family members of the elderly interviewed, who were generally younger relatives who lived either with them or nearby. These interviews focused on their perceptions of the flood and services provided by the parents. We interviewed directors of local health promoting hospitals

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and village health volunteers to get their more broad perspectives on the impact of the floods on illness and accidents among the elderly people in the area. A qualitative study was employed with 17 participants: 10 elderly people who had lived through the flood; 3 family members of these elderly people; 2 directors of the local health promoting hospitals; and 2 local village health volunteers. The age range of the elderly people interviewed was from 64-87 years old, with a mean age of 75 years. Analysis of the qualitative data revealed four major themes which were consistent across the interview: (1) Flood preparedness by elderly people; (2) Stoic nature of responses to the flooding; and (3) Self-care management of elderly people and longer-term health impacts of the floods.

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4.1.1.1 Flood preparedness by elderly people

All interviewees, including elderly people and the other key informants, talked about the lack of information and pre-warnings provided in relation to the 2011 flood. Obviously, in order to prepare for dealing with the consequences of a flood, residents needed to be aware that the flood was approaching, the size and nature of the flood

and potentially the length of time the flooding would likely occur. While information was disseminated on television, the elders in this study did not seem to have taken this on board, since many of them talked about the 'suddenness' of the flood and the way in which it took them by surprise. For example, a 68 year old female said *"All of sudden, the water came to my house. It happened quickly. I did not bring anything with me because there was no time for me to get my belongings."* Another older person said, *"Many men were out helping the community preparing sandbags and building walls against the flood. I was told that the community would be safe; but all of sudden, the walls broke and water got into the community really quick. I was informed in a short time; the flood water already came to my place. I did not prepare any personal belongings, food, drinking water or clothes"* (Female aged 82 years).

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The previous quote shows that there was certainly awareness within the local community of the risk of a flood, since men were trying to protect their community against the flood. However, the elderly people in this study all had physical mobility

problems, and therefore waited for information to be provided to them from interpersonal relationships with family, friends and village health volunteers. In the fast-changing context of flooding in monsoon season, this created a barrier to preparedness for the elderly people since they could not easily seek out information themselves. For example, an elder person said, *"I usually stayed home by myself because my family had to work in the field. No one in my family told me anything about the situation. When the flood water hit the area, I was told to leave my house"* (Female, 68 years). This person had to wait until family came back from working in the fields to update her about the flood.

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In some situations, family members did not live in the same province as the elderly people, and therefore could not be relied on to provide information about the flood. In this context, it makes it even more important to provide flood warnings and preparedness in other formats. For example, one elderly person said, *"I lived with my wife at home. Our children were living in another province. I had heard that many*

men were out helping the community by making sandbags and building walls against flood water. I did not have to prepare anything because I thought that the area where I lived would be safe from flood. But the walls were broken and the water hit the community in no time, so I did not have time to get my stuffs out with me" (Male, 84 years). This quote not only talks about the lack of information and preparedness about the flood, but also the fact that people in these communities did not perceive themselves at risk from flooding. Even though all of the older people had 'heard' about the potential of flooding, knew that other areas were flooded and also that local people were using sandbags to protect the community, there was still as sense that 'it will not affect us'. For example, an 82 year old female respondent said, *"I did not think that the flood would hit the community because there was no flood in the area for a long time. Even though I heard the news about the flood in Saraburi province, I still did not think that it would happen in my community"*. Another older participant said, "*Normally, there never was a flood happen in my area. It happened so sudden; I did not have time to prepare anything"*.

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These quotes highlight a very important issue in relation to flood preparedness, related to expectations from the past which structure future action. The elderly respondents talked about the fact that they had not had major floods in the past which, in their minds, almost inoculated them from floods in the future. When they heard about the possibility of flooding in their community, and even actual flooding in nearby areas, they still did not expect the floods to affect them, thereby increasing the shock and reducing the preparedness. This lack of expectation and sense of 'safety' of their local community from flooding may partly explain why they were not prepared for the floods, even though a number of them had heard about the imminent risks from family, TV or the fact that local men were building defenses against the flood.

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4.1.1.2 Stoic nature of responses to the flooding

The 2011 was one of the worst floods ever experienced in this province, in terms of the height of the flood water. Therefore, a number of people were forced

to leave their homes due to the height of the water. However, some elderly people in our study made the decision to stay in their homes, revealing their stoic nature. For these people, the flood waters made it impossible to live on the ground floor, meaning they had to stay on the second floor of their house for months, often in just one room. When the older people talked about their reasons to stay at their house, sometimes there was no articulated rationale. For example, a 72 year old female said, *"I had my son and daughter-in-law taking care of me of me during the flood. I had to stay home because I did not want to leave the place"*. This quote reveals a sense of lack of agency or having no choice ("I had to stay") coupled with the person actually not wanting to leave, due to her sense of place and belonging. The stoic nature of some people in these communities was also articulated by one of the directors of a local health promoting hospital who said *"There were many higher ground places prepared for people who want to evacuate and we encouraged these elders to leave their homes but they did not want to. So we had to get on a boat and bring them food, water and medicine they needed. Water persisted in the area for months. I saw these*

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elders having a difficult time being home and adjusting to the flood situation for months." This quote reveals not just the stoic nature of some older people, but also the fact that they were encouraged to leave by healthcare staff (in addition to their families) and the responsiveness of local healthcare services ("*We had to get on a boat*") and the difficulties experienced by the older people as a result of their decisions not to leave their houses.

Another older person also said that they did not want to leave their house, but gave a very different reason for this, *"I did not want to leave my home during flood because I was worried about someone coming to steal my stuff. But I asked my wife to leave home to stay with our son"* (Male aged 84 years). This quote reveals a lack of trust in others, not necessarily in their own community, but other people who may loot their unoccupied property. This person obviously knew the danger of the flood since they made sure their wife left and stayed with their son, but their fear of theft was so high that they stayed in the house.

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There was also an acknowledgement from some elderly people that they had left it too late to actually leave their house. Their lack of preparedness and sense of safety or inoculation from the flood outlined earlier had meant that by the time the flood came, it was too late to actually leave. For example, an 85 year old female said *"I am old. Most of the times I got help from my daughter. I stayed home on the second floor* [of her house] *almost every day. There was no way to go out of the house because the water was two-meters high"*. The effect of lack of preparedness was also talked about by a female family member who was talking about her mother *"I would have loved my mother to leave home, but she insisted to stay. "Once the water got really high, it was very difficult for her to leave"* (Female family member aged 53).

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4.1.1.3 Self-care management of elderly people and longer-term health impacts of the floods

Our sample of elderly people all had chronic conditions which mean both the need for medications and healthcare services and also for self-care management. The

main physical health problems among the older adults were hypertension and diabetes, the long term effects of which may be reduced by exercise and a healthy diet. However, during months of flooding whereby the older people were stranded on the second floor of their houses, both diet and physical activity became problematic. Food supplies were delivered by family members and local village volunteers, although exercise was also undertaken, albeit in new ways for them. For example, one older person said *"I had been home around two months during the flood. I took care of myself by having clean food and eating on time, three times a day. There were village health volunteers visiting home to home by boat providing food to people who stayed home. I exercised by walking around inside my home. Even though I was old, but I had good health so I had no health problems during the flood."* (Male aged 84 years). This quote shows the positive coping mechanisms undertaken by this man, including having a structure around diet and physical activity and its perceived positive impact on his health. Another person also talked about their strategies for coping with the flood and the fact that they were isolated, *"They*

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provided me some food. They could cook on a second flood of our home. There was a toilet upstairs so I did not have to use floating toilet provided by the local government. And I exercised by swinging my arms and walking around in my house upstairs. I was a bit stressed because I had to stay home all day. But I could not do anything, only wait until flood water had gone" (Female aged 72 years). Again, this person improvised in order to provide self-care around physical activity. They talked about the flood impacting on their mental health by being 'a bit stressed' although countered this by stating that they could not do anything about it other than wait for the flood waters to abate.

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The issue of the impact of the flood on the mental health of older people was highlighted in interviews with local health volunteers and the directors of the health promoting hospitals. After the flood, village health volunteers and healthcare staff work closely with the local government to try to restore the community. According to healthcare staff, many of older adults had developed stress and depression because

their farmlands, which were the main source of income for them and their family, were destroyed. For example, *"Some of the older adults were depressed because they were trapped at home for such a long time. They were very sad because their farms, the only source of income, were destroyed"* (Local health volunteer).

4.2 Section 2: Quantitative Findings

4.2.1 Demographic characteristics of participants

The participants of this study were elderly aged 60 years and above who experienced the 2011 flood disaster. Total of 160 participants, 80 persons were located in each group of the intervention and the control. The age of participants in the intervention group ranged from 60-90, mean age was 71.44 (SD = 9.387). Majority of their age was in the group of 60-69 years. Female participants participated in the study more than male (56.2%). Most of them had received education at primary school or less. The age of participants in the control group ranged from 60-90, mean age was 69.56 (SD = 7.345). It was found female participated in the control group more than male (60%). All of them had received education at primary school or less. Comparing demographic characteristics of participants between the intervention group and the

control group using chi-square test, it was found that both groups had their own home registered as an owner; had average 1-3 children per family; elders' caretakers were mainly son/daughter or son-daughter in laws. There were no statistical differences in most of characteristics except the level of education. The demographic characteristics of participants in both groups are shown in Table 1.

Table 1: Distribution of demographic characteristics (n=160)

Variables	Intervention Group n= 80 (%)	Control Group n= 80 (%)	P-value
Gender			.749
Male	35 (43.8)	32 (40.0)	
Female	45 (56.2)	48 (60.0)	
Age			.194
60-69	39 (48.8)	48 (60.0)	
70-79	23 (28.8)	22 (27.5)	
≥80	18 (22.4)	10 (12.5)	
Education			.028*
Primary school or less	74 (92.5)	80 (100.0)	

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High School or Higher	6 (7.5)	0 (0.0)	
Marital Status			.526
Single/Divorced/Widow	39 (48.8)	34 (42.5)	
Married/Pair	41 (51.2)	46 (57.5)	
Number of Child			.343
None	6 (7.5)	5 (6.2)	
1-3 Children	49 (61.2)	47 (58.8)	
4-6 Children	22 (27.5)	19 (23.8)	
7 or more Children	3 (3.8)	9 (11.2)	
Family Caretakers			.074
None	1 (1.2)	6 (7.5)	
Spouses	21 (26.2)	23 (28.8)	
Son/Daughter/Son and Daughter in laws	47 (58.8)	47 (58.8)	
Grandchild and Relatives	11 (13.8)	4 (5.0)	
Home Ownership			.235
Self	65 (86.2)	55 (68.8)	
Spouses	5 (6.2)	12 (15.0)	

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Children/Son or Daughter in laws	7 (8.8)	7 (8.8)
Relatives	3 (3.8)	5 (6.2)
Rent	0 (0.0)	1 (1.2)

*****Significance at P<0.05

P-value are calculated using Fisher's Exact test

4.2.2 Economic status of participants

Comparing economic status of participants between the intervention group and the control group, it was found that almost half of participants in each group are still active working. Main occupations of participants in these two groups were agriculturist and followed with labour respectively. There were no statistically significance differences between two groups in term of economic status. It showed almost half of the elders' income from both groups was insufficient. The majority of monthly income of both groups was in between 500-3,000 Baht per month. The economic status of elderly participants is shown in Table 2.

Table 2: Economic status (n=160)

Variables	Intervention Group n= 80 (%)	Control Group n= 80 (%)	P-value
Employment Status			.751
Unemployed	35 (43.8)	32 (40.0)	
Employed	45 (56.2)	48 (60.0)	
Occupation (n=93 Employed)	**n=45(%)**	**n=48 (%)**	.157
Government	1 (2.2)	0 (0.0)	
Retired			
Own Business	5 (4.4)	5 (11.9)	
Agriculturist	34 (75.6)	24 (57.1)	
Labour	8 (17.8)	13 (31.0)	
Sufficient Income			.261
Sufficient	37 (46.2)	29 (36.2)	
Insufficient	43 (53.8)	51(63.8)	
Monthly Income			.361

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500-3,000Bht	46 (57.5)	40 (50.0)
3,001-5,000Bht	14 (17.5)	11 (13.8)
5,001-10,000Bht	7 (8.8)	14 (17.5)
≥10,001	13 (16.2)	15 (18.8)

*****Significance at P<0.05

P-value are calculated using Fisher's Exact test

4.2.3 Flood condition experienced by participants in the intervention and the control groups.

In general, Thailand floods regularly. The central part of Thailand is plain and low land which usually faces the flash flood, especially during the rainy season starting around June to October. However, the 2011 flood was unusual. It was Thailand's worse flood in at least five decade. The results showed that all elderly from each group experienced the flood. They received news regarding to flood disaster mainly from television follow with from community leader, radio and family members respectively. The average duration of elderly people living with flood was 55 days (SD = 12.247). The height of flood water level was mainly reported at waist (61-90 cm) at 36.9%; and more than half of elderly participants experienced flood level chest and above (≥90

cm). Elderly family caretakers during flood were mainly son/daughter or son-daughter in laws. The flood conditions experienced by participants are shown in Table 3.

Table 3: Flood Conditions (n=160)

Variables	**Intervention Group n= 80 (%)**	**Control Group n= 80 (%)**	**P-value**
Source of flood information			.126
Radio	1 (1.2)	6 (7.5)	
TV	42 (52.25)	45 (56.2)	
Family Member/Relative/Neighbour	5 (6.2)	5 (6.2)	
Health Promoting Hospital/Village Health Volunteers	3 (3.8)	0 (0.0)	
Community Leader	29 (36.2)	24 (30.0)	
Evacuation			.090
Not evacuate	71 (88.8)	62 (77.5)	
Evacuate	9 (11.2)	18 (22.5)	

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Flood Duration			.259
1-30 days	7 (8.8)	2 (2.5)	
31-60 days	62 (77.5)	66 (82.5)	
61 days or more	11 (13.8)	12 (15.0)	
Family Caretaker During			.554
Flood			
None	1 (1.2)	4 (5.0)	
Spouses	26 (32.5)	23 (28.8)	
Child/Son-Daughter in	51 (63.8)	52 (65.0)	
laws/Relatives			
Neighbors	2 (2.5)	1 (1.2)	

*****Significance at P<0.05

P-value are calculated using Fisher's Exact test

4.2.4 Health Status among the Elderly

Among the elderly 160 participants, the result showed that the elderly reported with chronic diseases diagnosed by health professional was (57%); and the elderly reported with do not know/do not have chronic diseases was (43%). Three main health problems among the elderly were hypertension (35.1%), lipidemia (35.1%) and

diabetes (23.4%). Other types of chronic diseases found among the elderly were heart disease (11.7%) and bone problem (12.8%) respectively.

4.3 The results of flood preparedness among the elderly people in Saraburi Province

This section showed the numbers and percentages categorized by level of flood preparedness knowledge, attitude and practice/intention to practice of the elderly between the intervention and the control group using Bloom's cut point [53].

4.3.1 The result of flood preparedness knowledge among the elderly people in Saraburi Province

The analysis of flood preparedness knowledge among the elderly in both groups showed knowledge mean score was 18.54 ± 3.998 (min-max 9-25). Even though some of knowledge questions were given correctly, but there were still numbers of elderly people who answered incorrectly. Questions-related knowledge that numbers of elders answered incorrectly/did not know included flood can cause water contamination (38.8%); the definition of flood preparation (68.1%); what basic needs to prepare and move to higher ground (31.2%); important telephone numbers or

emergency contacts (43.8%); safe route and safe shelter provided by the local government (26.2%); prepare medicine for chronic condition and first aid kit (29.4%); the importance of evacuate when needed (29.4%); hand washing or washing cooking utensils in flood water (40.0%); and the importance of staying clam in time of flood disaster (33.1%). Numbers and percentage of flood preparedness knowledge scores of elderly at baseline between intervention and control groups are shown (See Appendix). Most of participants' scores of knowledge of both groups were in moderate level at baseline. In the 3rd and 6th month, the knowledge scores of participants in the intervention group had increased to good level while scores of participants in the control group were in the same level as first started. The level of flood preparedness knowledge scores are shown in the Table 4.

Table 4: Percentage categorized by level of flood preparedness knowledge among the elderly between the intervention and the control groups at baseline, follow up 1 and follow up 2 (n=160)

Variable	Intervention Groups (n=80)			Control Group (n=80)		
	Baseline	Follow up 1	Follow up 2	Baseline	Follow up 1	Follow up 2
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Knowledge						
Low (< 17)	26 (32.5)	5 (6.2)	3 (3.8)	23 (22.8)	32 (40.0)	18 (22.5)
Moderate (17-21)	37 (46.2)	16 (20.0)	18 (22.5)	33 (41.2)	34 (42.5)	45 (56.2)
Good (22-26)	17 (21.2)	59 (73.8)	59 (36.9)	24 (30.0)	14 (17.5)	17 (21.2)

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4.3.2 The result of flood preparedness attitude among the elderly people in Saraburi Province

Attitude's mean score of both groups at baseline was 20.26 ± 3.944 (min-max, 12-28). Important points of elder's attitudes toward flood disaster that needed to emphasized included flood was normal for elderly people (42.5%); think that there was no need to prepare clothes, food and medicine for flood disaster (45.6%); feel that there was not necessary to evacuate during flood (46.9%); feel safe to swim in flood water (15.6%); think that they were able to survive at home during flood for months (68.1%); believe that if something happen to himself/herself or their family members, it was something unpreventable, it is a fate (35.0%). Numbers and percentage of flood preparedness attitude scores of elderly at baseline between the intervention and the control group are shown (See Appendix). Most of participants' scores of attitude from both groups were in moderate level at baseline. In the 3rd and 6th month, the attitude scores of participants in the intervention group had increased to positive concern level while scores of participants in the control group were not

difference as first started. The level of flood preparedness elders' attitude scores are shown in the Table 5.

Table 5: Percentage categorized by level of flood preparedness attitude among the elderly between the intervention group and the control group at baseline, follow up 1 and follow 2

Variable	Intervention Groups			Control Group		
	Baseline	Follow up 1	Follow up 2	Baseline	Follow up 1	Follow up 2
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Attitude						
Negative concern (≤ 18)	32 (40.0)	15 (18.8)	1 (1.2)	20 (25.0)	24 (30.0)	27 (33.8)
Neutral concern (19-27)	40 (50.0)	46 (57.5)	36 (45.0)	45 (56.2)	49 (61.2)	43 (53.8)
Positive Concern (25-30)	8 (10.0)	19 (23.8)	43 (53.8)	15 (18.8)	7 (8.8)	10 (12.5)

4.3.3 The result of flood preparedness practice/intention to practice among the elderly people in Saraburi Province

Flood preparedness practice was divided into before, during and after flood. At baseline, it showed elderly did not prepare necessary items before flood including medicine (38.8%), clothes (40.6%), food supply (33.8%), important document (28.8%), first aid kit (52.50%), and supply for loss power (25.0%). During the flood, elderly did not properly practice preparedness behaviors, for instance, not listen to news about flood (26.9%), not cooperate with emergency service (36.9%), not cut down electricity (31.2%), not wash hands before meal (28.8%), not careful for accident (20.6%), not wash hands or minor puncture of wound with soaps (40.0%). After the flood, the elderly did not seek doctors or local health professional when sick or ill (16.2%), did not check electricity line after the flood was gone (19.4%), and did not check flood information from local news and government to update the situation (20.0%). Numbers and percentage of flood preparedness attitude scores of elderly at baseline between intervention and control groups are shown in (See Appendix).

Most of participants' scores of intention to practice of both groups were in moderate level at baseline. In the 3rd and 6th month, the intention to practice scores of participants in the intervention group moved to good level while scores of participants in the control group were in the same level as first started. The levels of flood preparedness intention to practice of the elderly are shown in the Table 6.

Table6: Percentage categorized by level of flood preparedness practice/intention to practice among the elderly between the intervention group and the control group at baseline, follow up 1 and follow 2.

Variable	Intervention Groups			Control Group		
	Baseline	Follow up 1	Follow up 2	Baseline	Follow up 1	Follow up 2
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Practice						
Poor (≤ 13)	28 (35.0)	6 (7.5)	2 (2.5)	25 (31.2)	32 (40.0)	24 (30.0)
Moderate (13-16)	37 (46.2)	21 (26.2)	20 (25.0)	31 (38.8)	38 (47.5)	35 (43.8)
Good (17-20)	15 (18.8)	53 (33.1)	58 (36.2)	24 (30.0)	10 (12.5)	21 (26.2)

4.4 Comparison the mean scores of flood preparedness knowledge, attitude and practice of the elderly between the intervention group and the control group.

This section illustrated the comparison the differences of mean scores of flood preparedness knowledge, attitude and practice/intention to practice among the elderly between the intervention group and the control group at baseline, 3rd month and 6th months. Independent t-test was used to test the difference change in mean scores of knowledge. It was found that there was no statistically significant difference of mean scores between two groups at baseline (t= 1.088, p-value= .278). After the elderly participants from the intervention group received the flood preparedness education program, their mean scores of knowledge were increased at 3rd month and 6th month respectively (22.70±2.905, 22.78±2.810) while participants' mean scores of knowledge in the control group were not much difference at 3rd and 6th month from the baseline. It showed there were statistically significant difference from the follow 1 and the follow 2 between two groups (t=-8.523, p-value <0.05; t=-7.764, p-value<0.05). The results are shown in the table 7.

Table 7: Comparison the mean score of flood preparedness knowledge among the elderly between the intervention and the control groups at baseline, follow up 1, and follow up 2.

Variable	Intervention Group (n=80)		Control Group (n=80)		t	P-value[a]
	mean	S.D.	mean	S.D.		
Knowledge						
Baseline	18.20	3.726	18.89	4.249	1.088	.278
Follow up 1	22.30	2.905	17.82	3.690	-8.523	<.001
Follow up 2	22.78	2.810	18.98	3.356	-7.764	<.001

[a]Independent t-test significance level at 0.05 (2-tailed)

The result showed there was statistically significant difference of the elders' attitude scores between the intervention and the control group at baseline (t=2.655, p-value <0.05). The mean score of attitude in the control group showed higher than the intervention (21.08±3.844, 19.45±3.897). After the elderly in the intervention group received the flood preparedness education program, mean scores of their attitude have increased from the baseline respectively (follow up 1 mean=22.02±3.142, follow up 2 mean 24.68±2.042). There were statistically significant differences between the

intervention and the control group at 3rd and the 6th after receiving the intervention program. The results are shown in Table 8.

Table 8: Comparison the mean score of flood preparedness attitude among the elderly between intervention and control groups at baseline, follow up 1, and follow up 2.

Variable	Intervention Group (n=80)		Control Group (n=80)		T	P-value[a]
	mean	S.D.	mean	S.D.		
Attitude						
Baseline	19.45	3.897	21.08	3.844	2.655	.009
Follow up 1	22.02	3.412	20.33	3.500	-3.088	.002
Follow up 2	24.68	2.042	20.10	3.948	-9.206	.002

[a]Independent t-test significance level at 0.05 (2-tailed)

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In tem of elders' practice/intention to practice scores, it showed there was no statistically significance difference between two groups at baseline. After exploring the effect of the flood preparedness education program, it was found that the mean scores

of practice/intention to practice among the elderly in the intervention group have significantly increased from the baseline 13.62±2.821 to follow up 1 (16.98±2.590) and follow up 2 (17.84±2.297). There was statistically significance differences between the intervention group and the control group at follow up 1 and follow up 2. The results are shown in the Table 9.

Table 9: Comparison the mean score of flood preparedness practice/intention to practice among the elderly between intervention and control groups at baseline, follow up 1, and follow up 2.

Variable	Intervention Groups (n=80)		Control Group (n=80)		T	P-value[a]
	mean	S.D.	mean	S.D.		
Practice						
Baseline	13.62	2.821	14.44	3.291	1.676	.096
Follow up 1	16.98	2.590	13.59	2.670	-8.144	<.001
Follow up 2	17.84	2.297	14.38	2.812	-8.529	<.001

[a]Independent t-test significance level at 0.05 (2-tailed)

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4.5 Comparison the mean scores of knowledge, attitude and practice/intention to practice toward flood preparedness among the elderly within group of the intervention and the control.

This section shows the overall comparison of mean scores of knowledge, attitude and practice/intention to practice using paired samples t-test for each dependent variable within the intervention group and the control group as shown in the following Tables (Table 10, 11, 12, 13, 14, and 15). .

4.5.1 Comparison the mean scores of knowledge, attitude and practice/intention to practice toward flood preparedness among the elderly within the intervention group

The comparison between knowledge scores of the elderly toward flood preparedness at baseline, follow up 1 and follow up 2 showed that the mean scores of the follow up 1 after receiving the flood preparedness education program had increased from the baseline (18.20±2.583) to the follow up 1 (22.30±4.152). There was no statistically significant difference between the follow up 1 and follow up 2. Therefore the comparison between the baseline and follow up showed statistically significant difference (p-value<0.05). Mean score from baseline has increased significantly at follow up 2. The results are shown in the Table 10.

Table 10: Comparison the mean scores of knowledge of flood preparedness within the intervention group at baseline, follow up 1 and follow up 2 (n=80)

Variables	Mean	Mean difference	S.D.	t	df	p-value
Knowledge						
Baseline	18.20	-4.100	2.583	-14.196	79	<.001
Follow up 1	22.30					
Follow up 1	22.30	-.475	4.152	-1.023	79	.309
Follow up 2	22.78					
Baseline	18.20	-4.575	4.947	-8.271	79	<.001
Follow up 2	22.78					

Paired Samples t-test for the significance level at 0.0

The comparison between the attitude's scores of the elderly toward flood preparedness showed that at baseline, the mean attitude scores of the elderly in the intervention was at (19.45±3.897). After receiving the education program at follow up 1, the attitude score had increased to (22.025±3.412), and the follow up 2 (24.68±2.042). For the attitude score, there was statistically significance different at

baseline and the follow up 1, baseline and the follow up, and the follow up 1 and the follow up 2 (p-value<0.05) as shown in Table 11.

Table 11: Comparison the mean scores of attitude of flood preparedness within the intervention group at baseline, follow up 1 and follow up 2 (n=80).

Variables	Mean	Mean difference	S.D.	t	df	p-value
Attitude						
Baseline	19.45	-2.575	3.897	-8.107	79	<.001
Follow up 1	22.025		3.412			
Follow up 1	22.025	-2.650	3.412	-5.532	79	<.001
Follow up 2	24.68		2.042			
Baseline	19.45	-5.225	3.897	-9.981	79	<.001
Follow up 2	24.68		2.042			

Paired Samples t-test for the significance level at 0.05

The comparison between practice/intention to practice scores of the elderly toward flood preparedness at baseline, follow up 1 and follow up 2 showed that the mean scores of the follow up 1 after receiving the flood preparedness education program had increased from the baseline (13.62±2.821) to the follow up 1

(16.98±2.590). There was statistically significant difference between the baseline and the follow up 1; and follow up 1 and follow up 2. Therefore the comparison between the baseline and follow up showed statistically significant difference (p-value<0.05). Mean score from baseline has increased significantly at follow up 2 as shown in Table 12.

Table 12: Comparison the mean scores of practice/intention to practice of flood Preparedness within the intervention group at baseline, follow up 1 and follow up 2 (n=80)

Variables	Mean	Mean difference	S.D.	T	df	p-value
Practice/ Intention to Practice						
Baseline	13.62	-3.350	2.821	-12.388	79	<.001
Follow up 1	16.98		2.590			
Follow up 1	16.98	-8.62	2.590	-2.367	79	.020
Follow up 2	17.84		2.297			
Baseline	13.62	-4.212	2.821	-10.231	79	<.001
Follow up 2	17.84		2.297			

Paired Samples t-test for the significance level at 0.05

4.5.2 Comparison the mean scores of knowledge, attitude and practice/intention to practice toward flood preparedness among the elderly within the control group

The comparison of the knowledge score in the control group showed there was no statistically significant difference between the baseline and the follow up 1, the follow up 1 and the follow up 2, and the baseline and the follow up 2 in the control group as shown in Table 13.

Table **13: Comparison the mean scores of knowledge of flood preparedness within the control group at baseline, follow up 1, and follow up 2 (n=80)**

Variables	Mean	Mean difference	S.D.	t	df	p-value
Knowledge						
Baseline	18.89	1.062	4.249	1.886	79	.063
Follow up 1	17.82		3.690			
Follow up 1	17.82	-1.150	3.690	-2.057	79	.043
Follow up 2	18.98		3.356			
Baseline	18.89	-.088	4.249	-.135	79	.893
Follow up 2	18.98		3.356			

Paired Samples t-test for the significance level at 0.05

The comparison of the attitude score in the control group showed there was no statistically significant difference between the baseline and the follow up 1, the follow up 1 and the follow up 2, and the baseline and the follow up 2 in the control group as shown in Table 14.

Table **14: Comparison the mean scores of attitude of flood preparedness within the control group at baseline, follow up 1 and follow up 2 (n=80)**

Variables	**Mean**	**Mean difference**	**S.D.**	**t**	**Df**	**p-value**
Attitude						
Baseline	21.08	.737	3.844	1.194	79	.236
Follow up 1	20.337		3.500			
Follow up 1	20.337	5.996	3.500	.354	79	.724
Follow up 2	20.10		3.948			
Baseline	21.08	5.537	3.844	1.575	79	.119
Follow up 2	20.10		3.948			

Paired Samples t-test for the significance level at 0.05

The comparison of the practice/intention to practice score in the control group showed there was no statistically significant difference between the baseline and the

follow up 1, the follow up 1 and the follow up 2, and the baseline and the follow up 2 in the control group as shown in Table 15.

Table 15: **Comparison the mean scores of practice/intention to practice of flood preparedness within the control group at baseline, follow up 1 and follow up 2 (n=80)**

Variables	Mean	Mean difference	S.D.	t	df	p-value
Practice						
Baseline	14.44	.850	3.291	1.598	79	.114
Follow up 1	13.59		2.670			
Follow up 1	13.59	-.787	2.670	-1.853	79	.068
Follow up 2	14.38		2.812			
Baseline	14.44	.062	3.291	.134	79	.839
Follow up 2	14.38		2.812			

Paired Samples t-test for the significance level at 0.05

4.6 The differences of knowledge, attitude and practice toward flood preparedness score between the intervention and the control groups at baseline, 3rd month and 6th month follow up by Repeated Measure ANOVA.

4.6.1 The difference of knowledge scores toward flood preparedness between the intervention group and the control group at baseline, 3rd month and 6th month follow up by Repeated Measure ANOVA

There was statistically significant difference between the intervention and the control group ($p<0.001$). Among within subjects, there was a statistically significant different between measurements ($p<0.001$). Interaction, there was a statistically significant difference between measurements of knowledge toward flood preparedness depending on group as shown in Table 16.

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Table 16: Repeated measure ANOVA of knowledge toward flood preparedness between intervention and control groups (n=180)

Source of variation	**SS**	**df**	**MS**	**F-test**	**P-value**
Between subjects					
Intervention	767.602	1	767.602	52.906	<.001
Within group (error)	2292.379	158	14.509		
Within Subject					
Time	448.079	1.790	250.364	20.305	<.001
Intervention x Time	629.929	1.790	351.973	28.546	<.001
Intervention x Within Group (error)	4386.658	282.774	12.330		
Total					

SS: Sum of Square

df: degree of freedom

MS: Mean Squares

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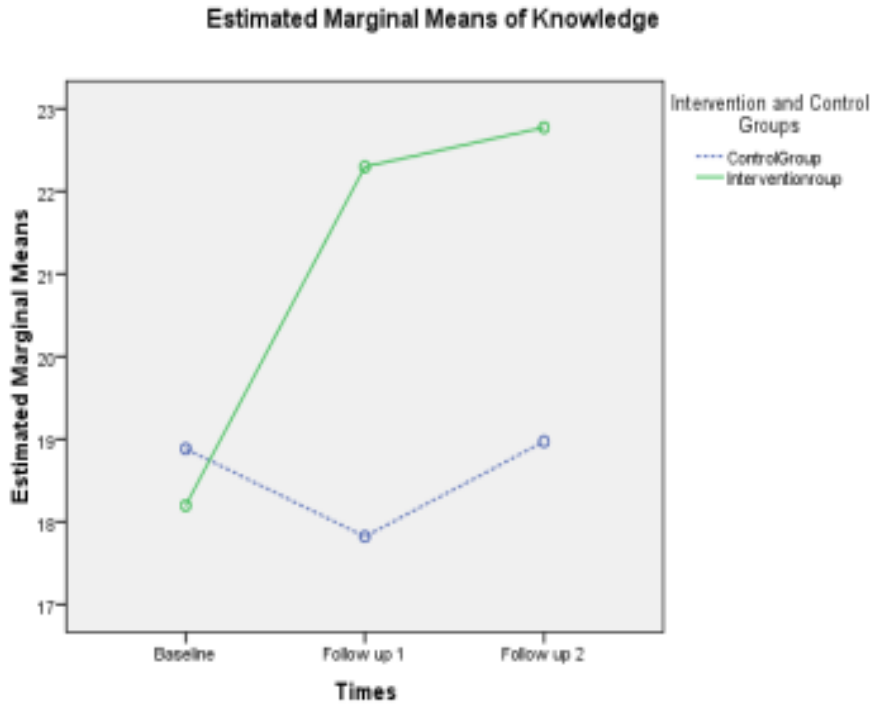

Figure 9: The change over time on the scores of knowledge in the intervention group and the control group

There was statistically significant differences between the intervention and the control groups of knowledge toward flood preparedness at 3rd month, and 6th month follow up ($p<0.001$ and <0.001, respectively) as shown in Table 17.

Table 17: Pairwise Comparisons of the different measurements of knowledge toward flood preparedness between the intervention and the control groups (n=180)

Times	Group (I)	Group (J)	Mean Difference (I-J)	SE	P-value	95% Confidence Interval for	
						Lower	Upper
Baseline	Control	Intervention	0.6875	0.632	.278	-0.560	1.935
3rd Month	Control	Intervention	-4.475	0.525	<.001	-5.512	-3.438
6th Month	Control	Intervention	-3.800	0.489	<.001	-4.766	-2.833

Baseline on estimated marginal means

*. The mean difference is significant at the 0.05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Knowledge toward flood preparedness, there were statistically significant differences between baseline and 3rd month follow up, and baseline and 6th month follow up of the intervention group (p< .001 and <.001, respectively) as shown in Table 18.

Table **18: Pairwise Comparisons of the different measures of knowledge toward flood preparedness in the time of measurements in the intervention and the control groups (n=180).**

Group	Time(I)	Time (J)	Mean Difference (I-J)	SE	P-value	95% Confidence Interval for	
						Lower	Upper
Intervention	Baseline	3th Month	-4.100	.448	<.001	-5.138	-3.017
	Baseline	6th Month	-4.575	.602	<.001	-6.033	-3.117
	3th Month	6th Month	-.475	.514	1.000	-1.719	0.769
Control	Baseline	3th Month	1.062	.448	.057	-.021	2.146
	Baseline	6th Month	-0.87	.602	1.000	-1.545	1.370
	3th Month	6th Month	-1.150	.514	.080	-2.394	.094

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4.6.2 The difference of attitude scores toward flood preparedness between the intervention group and the control group at baseline, 3rd month and 6th month follow up by Repeated Measure ANOVA

There was a statistically significant difference between the intervention and control groups ($p<0.001$). Among within subjects, there was statistically significant difference between measurements ($p<0.001$). Interaction, there was a statistically significant difference between measurements of attitude toward flood preparedness depending on group ($p<0.001$) as shown in Table 19.

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Table **19: Repeated measure ANOVA of attitude toward flood preparedness between intervention and control groups (n=180)**

Source of variation	**SS**	**df**	**MS**	**F-test**	**P-value**
Between subjects					
Intervention	286.752	1	286.752	22.828	<.001
Within group (error)	1984.72	158			
Within Subject					
Time	363.454	1.919	189.379	14.989	<.001
Intervention x Time	770.044	1.919	401.213	31.755	<.001
Intervention x Within Group (error)	3831. 208	303.232	12.635		
Total					

SS: Sum of Square

df: degree of freedom

MS: Mean Squares

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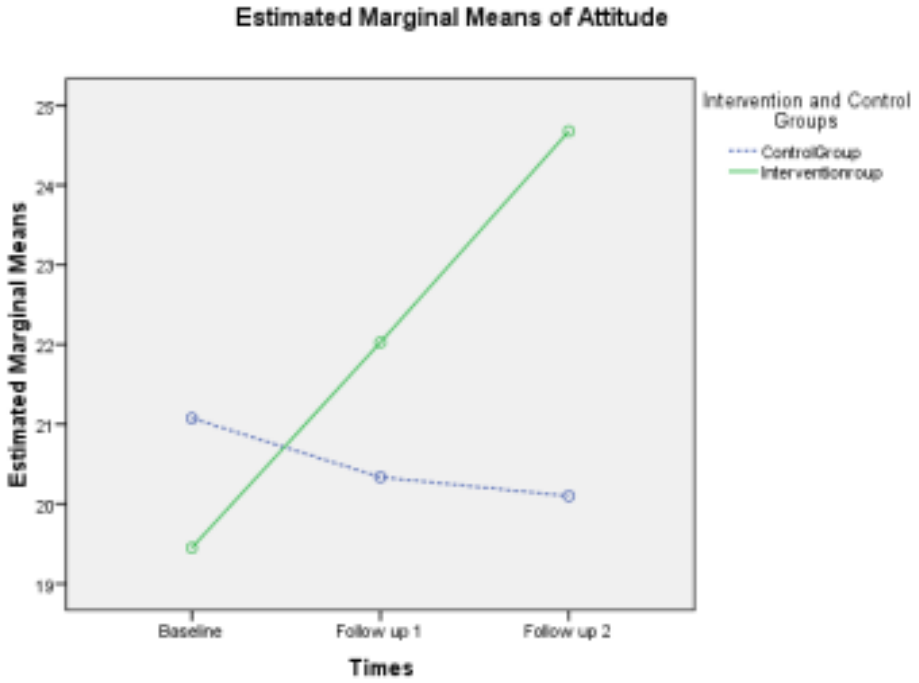

Figure 10: The change over time on the scores of attitude in the intervention group and the control group

There were statistically significant difference between the intervention and the control groups of attitude toward flood preparedness at 3th month and 6th month follow up ($p<0.001$ and <0.001, respectively) as shown in Table 20.

Table 20: **Pairwise Comparisons of the different measurements of attitude toward flood preparedness between the intervention and the control groups (n=180)**

Times	Group (I)	Group (J)	Mean Difference (I-J)	SE	P-value	95% Confidence Interval for	
						Lower	Upper
Baseline	Control	Intervention	1.625	.612	.009	.416	2.834
Follow up 1	Control	Intervention	-1.688	.547	.002	-2.767	-.608
Follow up 2	Control	Intervention	-4.575	.497	.000	-5.557	-3.593

Baseline on estimated marginal means

*. The mean difference is significant at the 0.05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Attitude toward flood preparedness, there were statistically significant differences between baseline and 3rd month follow, and baseline and 6th month follow up of the intervention group (p<0.001 and <0.001, respectively) as shown in Table 21.

Table 21: Pairwise Comparisons of the different measurements of attitude toward flood preparedness of the intervention and the control groups (n=180)

Group	Time(I)	Time (J)	Mean Difference (I-J)	SE	P-value	95% Confidence Interval for	
						Lower	Upper
Intervention	Baseline	3th Month	-2.575	.491	.000	-3.763	-1.387
	Baseline	6th Month	-5.225	.573	.000	-6.612	-3.838
	3th Month	6th Month	-2.650	.583	.000	-4.060	-1.240
Control	Baseline	3th Month	.738	.491	.406	-.451	1.926
	Baseline	6th Month	.975	.573	.273	-.412	2.362
	3th Month	6th Month	.237	.583	1.000	-1.172	1.647

Baseline on estimated marginal means

*. The mean difference is significant at the 0.05 level.

b. Adjustment for multiple comparisons: Bonferroni.

4.6.3 The difference of practice/intention to practice toward flood preparedness score between the intervention group and the control group at baseline, 3rd month and 6th month follow up by Repeated Measure ANOVA

There was a statistically significant difference between the intervention and control groups ($p<0.001$). Among within subjects, there was statistically significant difference between measurements ($p<0.001$). Interaction, there was a statistically significant difference between measurements of practice/intention to practice toward flood preparedness depending on group ($p<0.001$) as shown in Table 22.

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Table **22: Repeated measure ANOVA of practice/intention to practice toward flood preparedness between the intervention group and the control group (n=180)**

Source of variation	**SS**	**df**	**MS**	**F-test**	**P-value**
Between subjects					
Intervention	486.019	1	486.019	54.970	<.001
Within group (error)	1396.963	158	8.842		
Within Subject					
Time	349.267	2	174.633	24.830	<.001
Intervention x Time	478.950	2	239.475	34.050	<.001
Intervention x Within Group (error)	2222.450	316	7.033		
Total					

SS: Sum of Square

df: degree of freedom

MS: Mean Squares

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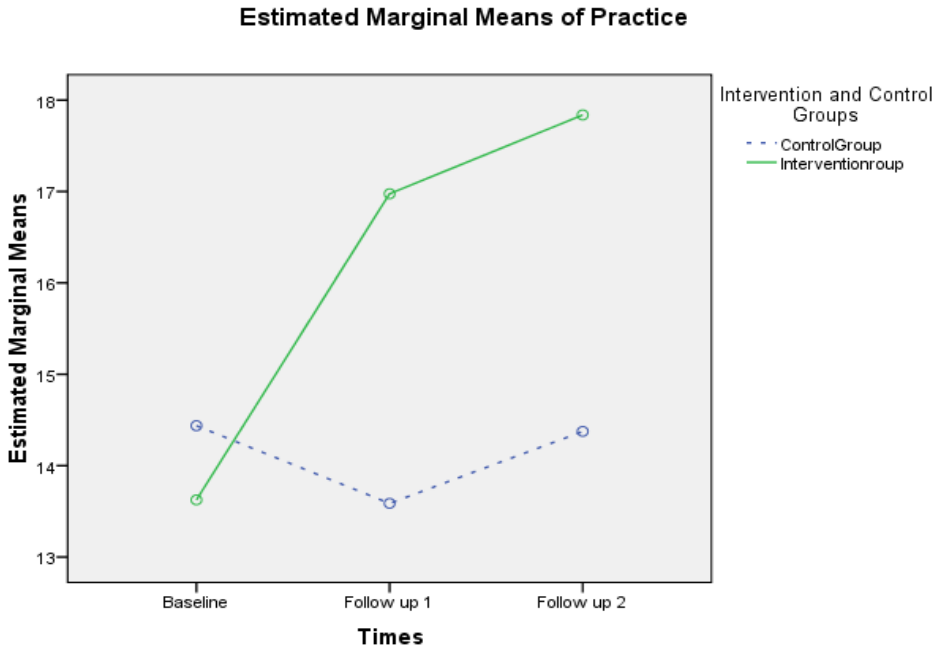

Figure 11: The change over time on the scores of practice/intention to practice in the intervention group and the control group

There were statistically significant difference between the intervention and the control groups of practice/intention to practice toward flood preparedness at 3th month and 6th month follow up ($p<0.001$ and <0.001, respectively) as shown in Table 23.

Table 23: Pairwise Comparisons of the different measurements of practice/intention to practice toward flood preparedness of the intervention and the control groups (n=180)

Times	Group (I)	Group (J)	Mean Difference (I-J)	SE	P-value	95% Confidence Interval for	
						Lower	Upper
Baseline	Control	Intervention	.812	.485	.096	-.145	1.770
3th Month	Control	Intervention	-3.338	.416	.000	-4.209	-2.566
6th Month	Control	Intervention	-3.462	.406	.000	-4.264	-2.661

Baseline on estimated marginal means

*. The mean difference is significant at the 0.05 level.

b. Adjustment for multiple comparisons: Bonferroni.

Practice/intention to practice toward flood preparedness, there were statistically significant differences between baseline and 3rd month follow, and baseline and 6th month follow up of the intervention group ($p<0.001$ and <0.001, respectively as shown in Table 24.

Table 24: Pairwise Comparisons of the different measurements of practice/ intention to practice toward flood preparedness of the intervention and the control groups (n=180)

Group	Time(I)	Time (J)	Mean Difference (I-J)	SE	P-value	95% Confidence Interval for	
						Lower	Upper
Intervention	Baseline	3th Month	-3.350	.422	.000	-4.371	-2.329
	Baseline	6th Month	-4.212	.439	.000	-5.275	-3.150
	3th Month	6th Month	-8.62	.396	.092	-1.820	.095
Control	Baseline	3th Month	.850	.422	.137	-.171	1.871
	Baseline	6th Month	.063	.439	1.000	-1.000	1.125
	3th Month	6th Month	-787	.396	.145	-1.745	.170

Baseline on estimated marginal means

*. The mean difference is significant at the 0.05 level.

b. Adjustment for multiple comparisons: Bonferroni.

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4.7 Section III: The Survey feedback of usefulness of flood preparedness manual booklet

Eighty elderly people from the intervention group were provided the flood preparedness manual booklet in the beginning of first education program session. The details include flood preparedness actions of what to do before, during and after flood disaster, emergency contact numbers, as well as diseases and health conditions that may occur during time of flood. Elders were read and described page by page; and they were asked to answer as one of the program techniques for them to remember the details from the manual booklet. Each of them could take the booklet home so that it could be used not only for the elderly but also their family members and neighbors. At 6th month follow up, elders were asked to complete five questions survey regarding to the usefulness of flood preparedness manual booklet. The results were as follow:

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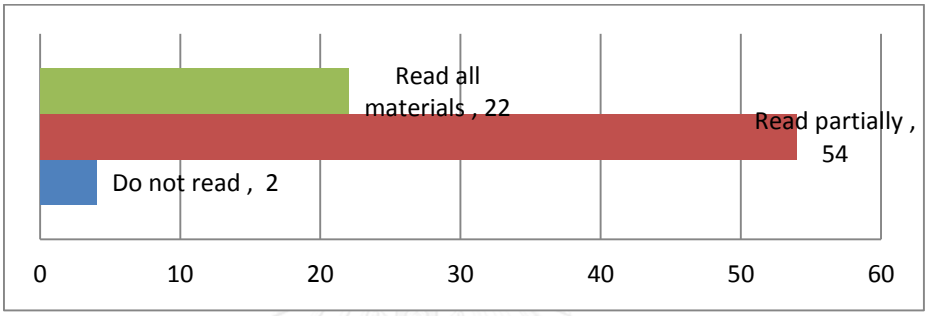
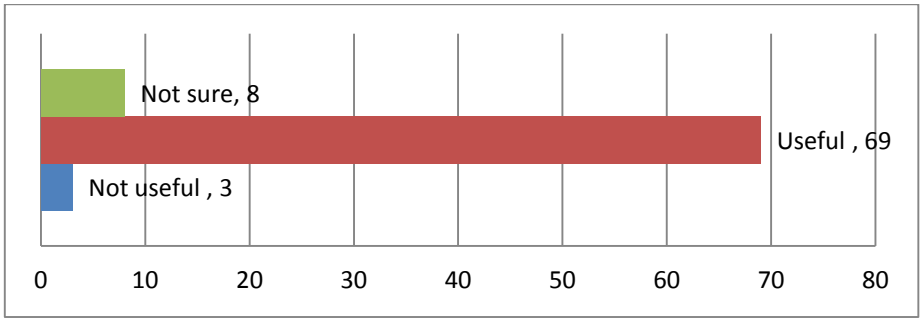
1. Do you read the flood preparedness manual booklet?

   The survey showed that the elderly do not read the materials in the flood preparedness manual booklet (2.5%); read all materials (30%); and read partially (54%).



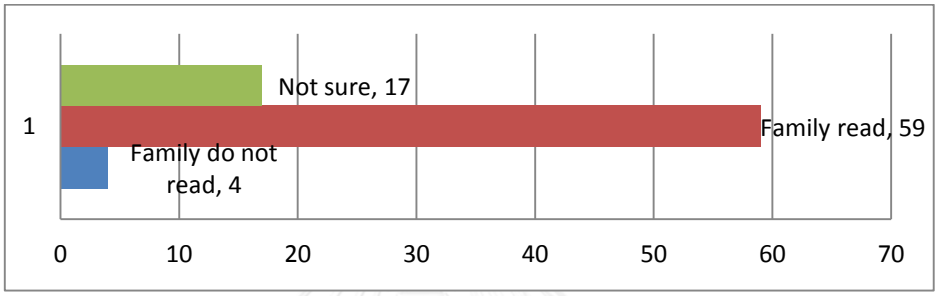
2. Do you find flood preparedness manual booklet useful?

   The survey showed that the elderly find the flood preparedness manual booklet not useful (3.75%); not sure (10%); and useful (86.25%).



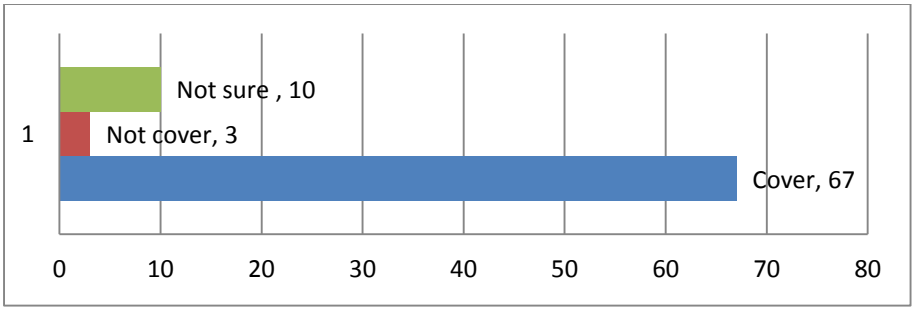
3. Do your family members read the flood preparedness manual booklet?

The survey showed that the elders' families do not read the flood preparedness manual booklet (4%); they are not sure (21.25%), and their family read the flood preparedness manual booklet (73.75%).



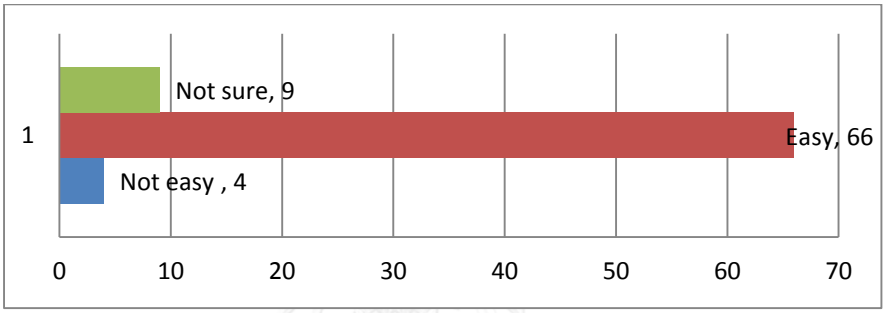
4. Do you think the flood manual booklet cover all the materials?

The survey showed that elders think the flood preparedness do not cover all the materials (3.75%); and they are not sure (12.5%); and they think the booklet cover all the materials (67%).



5. Do you find it easy and interesting to read the materials in the flood preparedness manual booklet?

The survey showed that the flood preparedness manual booklet is not easy to read for the elderly (5%); they are not sure (11.25%); they find the flood preparedness manual booklet Easy to read (82.5%).



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Chapter V: Discussion

The purposes of this study were to describe elders' risk perceptions toward the 2011 flood event; to explore elders' experiences of flood management before, during and after the flood; to develop flood preparedness education program (FPEP) for the elderly living in the community; and to evaluate the effectiveness of the flood preparedness education program (FPEP) after the flood preparedness education program was given to the elderly in Horathep and Taladnoy sub-districts, Ban Moh community, Saraburi province, Thailand. This study was done in two phases: qualitative and quantitative. Various methods including informal interview, in-depth interview and focus group discussion were employed to obtain qualitative information. Quasi-experimental study was conducted for the quantitative method. Intervention and control groups using two groups pre-test, post-test, and follow up at baseline, 3rd month and 6th month were conducted. One hundred and sixty elderly participants participated in the study. The effectiveness of the flood preparedness education program was determined by assessing the changes in knowledge, attitude and

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practice/intention to practice scores in regards to flood preparedness among the elderly. This chapter divided into three sections: the first section is a discussion of the findings, second section is a conclusion of the results; and final section provides limitation, recommendation and future study.

5.1 Section one: Discussion of the findings

5.1.1 Qualitative findings

Floods are the most common natural disasters that affect millions of people globally each year [20]. In 2011, Thailand experienced one of the worst floods in its history and this section outlines ways in which people responded to the floods, all of which has implications for the provision of health and social services in rural areas of Saraburi province. In terms of elderly people's experiences of the floods, there were three major themes which were consistent across the interviews: (1) flood preparedness of older people; (2) stoic nature of responses to the flooding; (3) self-care management of older people and longer-term health impacts of the floods. A previous study of flood preparedness in Chainat province, central Thailand [14] found flood preparedness, based on previous experiences of floods, impacted positively on

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decisions to evacuate. They found that people with previous flood experiences could determine environmental markers such as changes in the color of leaves, migration of animals and fast rising-water and they could therefore prepare for the flood and move to safe ground. Participants in this study perceived that the flood occurred suddenly which meant that even if they wanted to leave, they could not do so. Even through there was news on the national television, elderly people still had a strong believe that the severe flooding would not happen in their community. By understanding the situation, there was no time for these elderly people to prepare for such event. This links to research which found that flood victims who underestimated or ignored to occurrence of flooding were likely to have a lack of preparation [54]. The finding reveals a 'stoic' nature of many of the participants, who had a deep-rooted relationship with their property, community and farming land, leading to them preferring to stay in their house. While this increased their risk of illness and disease, they were willing to take the risk. This fits with some evacuation responses to Hurricane Katrina in the US whereby people with strong ties to family and community were less likely to leave

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their homes [55]. Similar stoicism has been found in Australian male farmers in response to the drought [56]. In response to stoicism and lack of preparedness, Lopes-Marrero & Tschakert [57] argue that community resilience in flood-prone areas needs to be enhanced through supporting social learning by building on existing local knowledge and also overcoming organizational distrust, which was found in this study since participants chose not to trust information from TV about the imminent flood and instead trusted their own instincts. In this case, their instincts about the floods not occurring were misguided, which left them stranded in the upstairs rooms of their houses. Nevertheless, social, family and government support was critical to their health maintenance and illness avoidance, and has also been found in other studies [14, 58]. In addition, our participants talked about a variety of self-care activities they undertook, showing their agency and resilience in the face of a natural disaster.

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5.2 Quantitative findings

5.2.1 Demographic characteristics, economic status and flood conditions

All participants in this study were age 60 years and above who experienced the 2011 flood. Majority of their age were in 60-69 years; the mean age was around 70 years. Most of them received education at primary school or lower. The elders' main occupations were agriculturists. More than half of the elderly participants were still active working; and their income range from 500-3,000 Baht. The characteristics of the participants participated in this study based on education, occupation and income are resembled with the Thailand national data [8]. Thailand is agricultural country, majority of elderly people living in rural area are reported with lower level of education and working in farms. The national data showed that almost 75% of financial support for the elderly in Thailand are from employment and/or families. With the severe impact of flood, loss of farm lands, financial constraint could create stress and depression among the elderly in time of flood. The findings showed the proportion of female participated in the study more than male. It was not surprised to see disproportionate among gender. The excess of elderly women over men in Thailand is increasing [52,

59]. This gender proportion was seen in other studies that showed women participated more than men in the flood study [14, 26]. However, we should not overlook the issues of flood preparedness among gender.

In term of flood conditions, Thailand floods regularly especially in the central part which the land is low and plain. Thailand faced one of the most severe floods [23]. Older people are considered vulnerable during disaster; and once they are affected by disaster, their needs are very different than other groups [9]. Elderly in this study reported their experiences severe flood situation with the average of 55 days. The average height of flood water was approximately 61-90 Centimeters and above. It was reported more than half of elderly participants did not evacuate during flood. This similar to the evacuation situation of hurricane Katrina in the U.S. in which many elders were less likely than general population to leave their homes or to leave their properties after the disaster and evacuation warning were posted [40, 60]. This study reported elders' situations in which elders' houses were surrounded by flood water. It was very difficult for them to travel from place to place; because the only

transportation during those times were only boat. Especially the elders with chronic conditions would face hardship situation during flooding disaster. This flooding situations are similar to the previous disaster situations among the elderly [40, 58, 60, 61]. At this point, once water started to remain at two meter high, water became stagnant; elderly were trapped at home, they would rely heavily on their family members and village health volunteers in providing basic needs during two month period of flood. Generally elders were cared by their family members as reported in this study. Bei Bei et al [58], suggested that social and family support to elderly in the face of disaster is really important. Elderly without good support night be adversely affected by disaster.

5.2.2 Flood preparedness knowledge, attitude and practices of elderly people at baseline

The findings showed the elderly were found to have moderate level of knowledge, attitude and practice/intention to practice in regards to flood preparedness. Though their knowledge, attitude and practice were acceptable, but

their knowledge and practice/intention to practice regarding self-preparation, personal hygiene and caution for accident; and their attitude towards evacuation were probably inadequate. These are issues to be emphasized, for instance, what basic needs and necessary items to prepare, important document telephone numbers and emergency contacts; personal hygiene (swimming, hand washing, washing cooking utensils in flood water); the importance of evacuation in time of severe flood; and/or accidents that come with flood. Previous studies have shown that one reason for people lack of preparedness against flood disaster is an inappropriate perception against flood risk [62, 63]. People tend to believe that if a major flood disaster occurs in a certain year, no major flood will occur from sometime after [62]. Previous study found that flood victims who underestimate or ignore the occurrence of flooding were likely to have a lack of preparation[54]. By underestimate the flood situation, there was no time for these elderly people to prepare for such event. Generally flood are annual and common problem in Thailand, especially in the raining season starting from June to October [64]. In 2011 flood, all of the elderly participants experienced worse flood

situation. This findings revealed majority of the elderly enduring the flood by staying inside their houses almost two months. Previous study mentioned that flood victims tend to stay in their homes for as long as they can [65]. Having not evacuate in time of severe flooding is an important issue that should not be ignored. This study consistent with previous studies which it was found older people were less likely to leave their homes when threatened by disaster or less likely to express willingness to do so in the future [65, 66]. However, our findings is contradicted with the study from England and Wales in which it showed flooded respondents moved out of their homes to stay with relatives, rest centers, or rented properties [27].

5.2.3 The Development of Flood Preparedness Manual Booklet through Community Participation

The process of flood preparedness manual booklet involved key persons in the community including directors of health promoting hospitals, health personnel from local health center and community hospital, community leader, village health volunteers, representative of the elderly, representative of the elderly family care takers, and the drawer recruited within the community. Their participation and

cooperation contributed to the successful of the development of the flood preparedness manual booklet and study materials for the flood preparedness education program. By involving community members in the process, this created community capacity building and encouraged their contribution to the community study. For instance, the drawer of the flood preparedness manual booklet is paralyzed. He cannot move his body from his neck down. However, he has a unique drawing skill by using his mouth to draw a picture. By knowing that he was from the community; and he had the skill; so he was recruited by his willingness to participate in the process of the intervention study. His involvement contributed the meaningful to the study and the community. Furthermore, by getting the community members to take parts such as to provide material input, to proofread on the flood preparedness manual booklet, to make a decision on what materials to be included or excluded; this encouraged their involvement and let them feel the sense of belonging to the study of the community. The process of community participation in the study is similar to previous studies in which to activate community-based flood disaster preparedness

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activities, it is first important to encourage residents to take interest in disasters in local areas [67, 68]

5.2.4 Effectiveness of the Flood Preparedness Education Program (FPEP*)*

Flood preparedness education program with intervention group and control group pre-test and post-test study was conducted in the quantitative phase of this study. Elderly 60 years and above were recruited to participate in the program; 80 persons were located in each group. They continued throughout the program. Education sessions ran for three months once a month. The flood preparedness education program was provided to the elderly in the intervention group. Education program and flood preparedness manual booklets were given to the elderly in the intervention group only. During the program period, the control group was not given any education sessions. They were given education sessions twice after the program was finished. The effectiveness of the program was evaluated by comparing the knowledge, attitude and practice/intention to practice scores within group and

between groups. Measurement of knowledge, attitude and practice/intention to practice started at baseline, at 3rd month and 6th month follow ups.

5.2.4.1 Knowledge

The findings of the study revealed that there were statistically significant differences of knowledge scores within group after receiving the flood preparedness education program and the flood preparedness manual booklet. The elders' knowledge scores from the intervention group increased significantly from the baseline to the follow up 1 and follow up 2 (18.20, 22.30 and 22.78 respectively) while the elders' knowledge scores in the control group remained the same (mean = 18.89, 17.82 and 18.98 respectively). Previous study of Joshi et al [34], their study evaluated the effectiveness of information booklet on knowledge about disaster preparedness, it showed booklet improved knowledge of people regarding disaster preparedness. Similarity this study had used flood manual booklet as educational tool in order to provide information regarding flood preparedness among the elderly. Knowledge among the elderly in some questions in percentage regarding to learning about safest

route for evacuation, preparing medicine, first aid kit and important documents, learning important telephone number and contact in time of emergency were increased from the baseline to the follow ups. This study is similar to previous studies in term of the disaster education program improved participants' knowledge [36, 37]

5.2.4.2 Attitude

The findings revealed attitude toward flood preparedness at baseline, the mean score of attitude among the elderly in the control group (21.08±3.844) was higher than the mean score of the intervention group (19.45±3.879); however, when comparing the scores at the 3rd month and the 6th month, it showed that the attitude scores among the elderly in the intervention group had significantly increased from the baseline to the 3rd and the 6th month (19.45, 22.02 and 24.68 respectively). This study attitude outcome is similar to the study of disaster preparedness among the nurses in Razi Psychiatric Hospital. The attitude scores increased after receiving the disaster preparedness education program [69].

5.2.4.3 Practice/Intention to Practice

The findings revealed there were statistically significant differences of practice/intention to practice scores within group after receiving the flood preparedness education program. The elder' practice/intention to practice scores from the intervention group increased significantly from the baseline to the follow up 1 and follow up 2 (13.62, 16.98 and 17.84 respectively) while the elders' practice/intention to practice scores in the control group remained the same (14.44, 13.59 and 14.38 respectively). Similarly to the previous disaster preparedness studies [31, 35, 36], participants in the training program had higher preparedness behavior than ones who did not participate in the program.

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5.2.5 The Discussion of the Theories Applied to the Intervention Program

This study applied the theory of planned behavior developed by Ajzen and Fishbein [44]. The theory suggested that behavior is dependent on a person's intention to perform behavior; and intention is determine by attitude, subjective norms and perceived behavioral control. The attitude to the behavior is the balancing of pros and cons in performing behavior or risk; subjective norms associated with social pressure

such as peers, media or family; and perceived behavioral control is the perception the person has about their ability to perform the behavior. Communication theory was also applied to the intervention study [44]. Risk communication is defined as a two-way process between the communicator and the recipient of the message. Berlo's model identifies four elements of communication: source, message, channel, and receiver [44]. And the effectiveness of the community happens when the audience has achieved, acted on or responded to a message. Theories were combined to develop the flood preparedness education program (FPEP). In this study, the sources were guest speakers, who were knowledgeable on the flood preparedness, the context and nature of the elderly in the particular areas, and flood preparedness manual booklet with rich education details developed suitably for the elderly. Messages were the educational materials and flood preparedness manual booklet. Channels were details hearing from the guest speaker or the discussion in the education session; and/or seeing from the pictorial design or written words in the manual booklet. Chanel were the workshops, the discussion, and the flood preparedness manual booklet. And the receiver were the

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elderly and their responses to a message; for instance, their knowledge, attitude and practice/intention to practice toward flood preparedness. Once the elderly have decent knowledge and positive attitude toward flood preparedness, they will express or act upon their knowledge, attitude and intention accordingly. The previous study mentioned that to achieve disaster resilience in elderly group, risk communication and risk education carried out before disaster occurrence are immensely important to constitute awareness [70]

5.3 Conclusion

This study carried out three sub-districts: Horathep, Taladnoy and Kokyai which located in Ban Moh district, Saraburi province, Thailand. Several objectives were focused in this study: to describe elders' risk perceptions toward the 2011 flood and to explore their experiences management of flood before, during and after; as well as to provide flood preparedness education program and assess the effectiveness by measuring the scores of the elders' knowledge, attitude and practice/intention to practice. Two phases including qualitative and quantitative were employed. Qualitative

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was used to understand their experiences of flood. Quantitative was used to evaluate the effectiveness of the program using flood manual booklet created by involvement of community participation. The program provided flood preparedness information of important actions to do; for instance, checking and updating the flood information, learning about safety route, preparing basic needs and important documents, learning important contact information, diseases that come with flood, injuries and accident prevention, personal hygiene and importance of evacuation by using flood preparedness manual booklet as an educational tool in this program. The findings showed that after elderly people received the program, their knowledge, attitude and practice/intention to practice had increased significantly. The results of the program showed knowledge of elderly participants has increased significantly from the beginning of the program to follow 1 (3^{rd} month) and follow 2 (6^{th} month) in the intervention group compared with the control group. In term of attitude, it showed significant difference of mean scores of attitude between two groups at baseline. The attitude scores of the elderly in the control group were higher than the intervention

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group at baseline. But comparing from time measurement of attitude in the intervention group, it showed elder's attitude has increased significantly while the elders' attitude from the control group had slightly declined. The practice/intention to practice scores among the elderly between both groups showed insignificance differences at baseline. By receiving the education program, elders in the intervention group have significant difference increase in practice/intention to practice toward flood preparedness. This study conducted with baseline, follow up one at 3rd month and follow up 2 at 6th month. In conclusion, the community based flood preparedness education program had positive impact on elders' knowledge, attitude and practice/intention to practice toward flood preparation.

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5.4 Limitations of the study

Due to the sample size was small, focused mainly on elderly people in the purposive selected community; and the answers were self-reported which could produce under or over report of the flood event. Recall bias may occur because these participants were asked about their experiences of flood months after the flood event.

Furthermore, their experiences of flood in the selected community may not be the same as other areas due to difference of community contexts, infrastructure, and selected population within each area. As such findings might not be generalizable to other elderly people in different communities.

5.5 Recommendation

This study can be replicated and implemented in other areas with the similar characteristics for promoting knowledge, attitude and practice toward flood disaster preparedness. Local government should use the outcomes of this study as an evidence to continue regular drill and ongoing training regarding to flood preparedness. Flood disaster preparedness education among community member including community leader, village health volunteers, and/or family caretakers should be encouraged. Flood preparedness manual booklet should be revised or updated depending on time and situation. In term of sustainability, health center is the place where the elderly in the community gather together monthly. This will be a perfect location for the elderly to receive ongoing flood disaster preparedness education at least twice a year,

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especially before raining season. This will help the elderly maintain their knowledge toward flood preparedness. Community education is important for effective response to flood risk. Disaster preparedness activity should include regular exercise to test preparedness and flood emergency.

5.6 Future Research

This research should be carried out in larger population for longer period of time in order to determine the change in knowledge, attitude and practice of food disaster preparedness. Elders' caretakers should be involved in order to gain knowledge in regards to care the elderly in time of flood disaster. Village health volunteers play major role in caring the elderly in the community, they should be involved in the future intervention in order to gain beneficial outcomes. Future study can be carried out to different type of population such as children in high-school, middle-age adults, and health personnel expertise in caring the elderly in time of flood. Preparedness is one of the top concerns in preventing and minimizing the impacts of natural disasters. Thailand is prone to flood disaster. Community regular drill and

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ongoing training in regards to flood preparedness involving community members including community leaders, village health volunteers should be done. The training of health personnel to suitable care the elderly in time of flood disaster should be considered.

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APPENDICES

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Appendix A: Appendix A: General Information and Knowledge, Attitudes, and Practice/Intention to Practice Questionnaire

General Information

1. Name:_____

2. Age:_____

3. Sex:
   ☐ Male ☐ Female

4. Marital Status ☐ Single ☐ Married ☐ Divorced/Separated ☐ Spouse Passed Away

5. Education ☐ No Education ☐ Primary School ☐ Secondary School ☐ Bachelor or Higher

6. Occupation ☐ Own Business ☐ Employee ☐ Farmer ☐ Others_____

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7. Health Condition ☐ Hypertension ☐ Diabetes ☐ Cardiovascular Disease ☐ Others-_____

8. How many children do you have? _____

9. Whom do you live with? _____

10. Income

☐ No Income ☐ Less than 1,000 Baht
☐ 1,000-5,000 Baht ☐ > 5,000

Knowledge, Attitude, and Practice Questionnaires

Part I: Knowledge

Please select the best answer by placing a ✓ in the column answer for each of the following questions.

Statement	Yes	No	Do not know
1. Can flood cause water contamination and soil erosion?			
2. Do you think this statement is a definition for the flood preparation “an action taken by an individual or family to prevent, protect, against and minimize physical and emotional damage that result from flood”?			
3. When local government announces the severe of the flood, should you prepare basic needs and move to higher ground?			
4. When local government announces the severe of the flood, should you move your vehicles and pets to dry place?			
5. Should you write down important telephone numbers and keep it where you can easily remember?			

6. Should you have large corks or stoppers to plug showers, tubs, or basins from water rising up through the pipe?			
7. Should you learn about the safest route in order to evacuate to higher ground from the media such as radio or television?			
8. Should you get used to the flood warning system provided by the local government?			
9. Should you prepare dry, canned food before flood come to your community?			
10. Should you prepare medicine and first aid kit before flood come to your community?			
11. Should you prepare clothing and copies of important documents before flood come to your community?			
12. Should you prepare materials that can prevent your home from flood water?			
13. Is it true you can only forecast flood from animal behaviors?			
14. Is it important to stay alert about flood situation from radio/TV?			
15. Is it important to evacuate if flood situation in your area is really bad?			
16. Can turning off electricity during flood prevent the risk of electrocution?			
17. Is flood water contaminated?			

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18. Can hand washing before eating or drinking keep your health away from germ and bacteria during flood?			
19. Is it ok to drink or wash hands from flood water?			
20. It is important to be aware of accidents such as falling and drowning during flood?			
21. Is it important to stay calm when you know that your area is at risk of flooding?			
22. Do you think seeking medical attention if you become sick or ill, or let your family know about your situation immediately important action to do?			
23. After flood, does checking electricity system and appliances within your home necessary?			
24. Can leptospirosis, diarrhea, or athlete's foot happen during flood?			
25. Can poisonous animals come in your homes during flood?			
26. Can information checking from TV/radio keep you update about the flood situation?			

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Part II: Attitude

Please state your opinion about the statement. There is not right or wrong answer to these questions, so please give your answer that best represents your opinions. Please select the best answer by placing a ✓ in the column answer for each the following questions.

Statement	Agree	Neutral	Do not Agree
1. Flood often occurs in my community, so I think flood is normal for me.			
2. I think it is not necessary to prepare clothing, food, and medicine before flood.			
3. I am not afraid of flood disaster.			
4. I think public information regarding to flood provided for the community is important.			
5. I think stay clam is an important action to do during flood.			
6. I think it is important to have knowledge of flood preparedness.			
7. I care about flood and its consequences.			
8. I think it is not necessary to evacuate during flood.			

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9. If something happens to me or my family during flood, it is a fate.			
10. I think it is safe to swim in flood water.			
11. I think I am capable of preparing basic needs for myself before flood.			
12. I can survive during flood even though the flood persists in my area more than two months.			
13. I may have an accident during flood such as falling or drowning.			
14. I do not think I will have stress after severe flooding.			
15. I do not think anyone or any organizations can help me during and after flood.			

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Part III: Practice/Intention to Practice

Please select the best answer by placing a ✓ in the column answer for each of the following questions.

Statement	Yes	No	Do not know
1. When I hear the news about flood coming to my community, I will prepare medicine before it comes.			
2. When I hear the news about flood coming to my community, I will prepare clothing before it comes.			
3. When I hear the news about flood coming to my community, I will prepare dry, canned food.			
4. Before flood comes to my community, I have to prepare copies of important documents such as identification care or medical record.			
5. Before flood comes to my community, I have to prepare first aid kit.			
6. Before flood comes to my community, I have to prepare for loss power such as candles, flashlights, and batteries.			
7. I have to listen to the TV/radio for more information to stay alert about the flood situation.			
8. I have to corporate with the emergency service if they tell me to evacuate during flood.			
9. During flood, I have to turn off electricity in order to prevent electrocution.			

10. I have to wash my hands before eating or drinking because my hands may be contaminated from flood water.			
11. To avoid infection, I will clean minor puncture wounds, or cuts with soap and clean water.			
12. If I have to walk through flood, I have to be in extreme caution. I may have to walk with stick.			
13. I will never drink flood water.			
14. I will stay out of flood area as much as possible.			
15. I will not wash kitchen utensils with flood water.			
16. I will wear rubber boots when I walk through flood water.			
17. I will seek immediate medical attention if I become sick or ill; or I will let my family know about my situation immediately.			
18. I will be aware of personal hygiene such as wash hands before eating and drinking even though flood is gone			
19. I will check electricity lines, plugs, appliances within my home to make sure it is safe.			
20. Even through flood is gone; I still will check flood information from local news and government to update the situations.			

Appendix B: Qualitative Study Interview Guidelines

Interview Guideline

The following is an interview guide that the researcher uses in the process of interviewing key informants.

Introduction:

I want to thank you for taking the time to meet with me today. May name is Saovalux Dullyaperadis. I would like to talk to you about your experiences regarding to the 2011 flood event. The interview should take less than an hour. I will be taping the session because I don't want to miss any of your comments. Although I will be taking some note during the session. I can't possibly write fast enough to get it all down. Because we're on tape, please be sure to speak up so that we don't miss your comments. All responses will be kept confidential. This means that your interviews responses will only be shared with research team members and we will ensure that any information we include in our report does not identify you are the respondent. Remember, you don't have to talk about anything you don't want to and you may end the interview at any time.

Are there any questions about what I have just explained?
Are you willing to participate in this interview?

_____ _____ _____

Interviewee Witness Date

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Guideline for Interviewing the Elderly

Questions:

1. Please tell me about your experiences on the 2011 flood event

2. Had you expected such event would occur in your community? Why?

3. What were sources of flood information did you get from?

4. How did you take care of yourself before the flood? Please explain.

5. How did you take care of yourself during the flood? Please explain.

6. How did you take care of yourself after the flood? Please explain.

7. What did you think about the flood event?

8. Do you think the flood would severely affect your community and yourself?

Additional Comments:

9. Is there anything would you like to add?

Closing:

I'll be analyzing the information you and others gave me. I'll be happy to send you a copy to review at that time, if you are interested. Thank you for your time.

Guideline for Interviewing VHVs, Family Caretakers, Community Leaders, Nurses, and Directors of Health Promoting Hospital

Questions:

1. Please tell me about your experiences on the 2011 flood event

2. Had you expected such event would occur in your community? Why?

3. What were sources of flood information did you get from?

4. How did the elderly take care of themselves before the flood? Please explain.

5. How did the elderly take care of themselves during the flood? Please explain.

6. How did the elderly take care of themselves after the flood? Please explain.

7. What did you think about the flood event?

8. What are your ideas of how to take care of the elderly during the time of flood?

Additional Comments:

9. Is there anything would you like to add?

Closing:

I'll be analyzing the information you and others gave me. I'll be happy to send you a copy to review at that time, if you are interested. Thank you for your time.

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Focus Group Discussion Guideline

Good morning, my name is Saovalux Dullyaperadis and research assistant's names. We are very pleased you have agreed to join us today. We are here to talk about the past flood event that happened in the 2011. The discussion we are going to have is called a focus group. For those of you who have never participated in one of these sessions I would like to explain a little bit about this type of research.

Focus group are used to gather information informally from a small group of individuals who have a common interest in a particular subject—in this instance, elders, their family caretakers, and village health volunteers are brought into the discussion. In focus group, there is no right or wrong answers. We want to hear from everyone here. We are pleased you can be part of this group because we think you have important ideas, opinions, and experiences regarding flood disaster. Please do not hesitate to speak up when you have a point you would like to make. I will be moderating the discussion and moving us along so that we touch on all of the key subjects on our agenda. We will be keeping a record of this discussion. I would like to follow what is being said and then go back later to review what you said again so I can accurately convey the information, experiences, ideas and opinions.

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Questions:

1. Were you aware of the 2011 flood? Had you known before that the flood would hit your community?

2. What were sources of information did you get from, before, during and after the flood?

3. For the elderly, in general before the flood hit your community, how did you manage your self-care?

4. For the elderly, how did you manage self-care during the time of flood?

5. For the elderly, how did you manage self-care after the flood?

6. For the elder's family caretakers, what were roles of elderly caretaking in the family?

7. For the elderly family caretakers, how did you manage to cope with the flood and to take care of the elderly at the same time?

8. For village health volunteer, what were your roles for the community before, during, and after the flood?

9. In the situation that elderly did not want to evacuate from their homes, what did they do inside the house?

10. Did elderly know about the flood? Had them gotten any information from family caretakers or community?

Appendix C: General Information and Knowledge, Attitudes, and Practice/Intention to Practice Questionnaire (Thai Version)

ส่วนที่ 1 ข้อมูลทั่วไป

1. ผู้ตอบแบบสอบถาม	ชื่อ……..
2. เพศ	☐1.ชาย ☐2.หญิง
3. อายุ	อายุ ……. ปี
4. สถานะภาพสมรส	☐1.โสด ☐2.สมรส ☐6.อื่นๆ.....
5. การศึกษา	☐1.ไม่ได้รับการศึกษา ☐2.ประถมศึกษา ☐3.มัธยมศึกษา ☐4.อนุปริญญา ☐4. ปริญญาตรีและสูงกว่า
6. อาชีพ	☐0.ไม่ได้ประกอบอาชีพ ☐1.ประกอบอาชีพ(อาชีพหลัก) ☐1.ข้าราชการเกษียณ ☐2.ค้าขาย ☐3.เกษตรกร ☐4.รับจ้าง ☐5.ธุรกิจส่วนตัว/เจ้าของธุรกิจ ☐6.เจ้าของห้องเช่า/บ้านเช่า ☐7.อื่นๆ (ระบุ).....

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7. รายได้	□0.ไม่มี □1. มี รวม.....บาท/เดือน (โปรดระบุแหล่งของรายได้ และระบุได้มากกว่า 1 ข้อ) □1. เงินเดือนประจำ .....บาท/เดือน □ 2. ค่าจ้าง (รายวัน/ชิ้น/งวด) .....บาท/เดือน □ 3. ลูกหลานให้ .....บาท/เดือน □ 4. ญาติ /คนอื่นๆให้ .....บาท/เดือน □ 5. รัฐสงเคราะห์ให้รายเดือน .....บาท/เดือน □ 6. งานเกษตร ปลูกพืช เลี้ยงสัตว์.....บาท/เดือน □ 9. อื่นๆ (ระบุ) …… ..... บาท/เดือน
8. รายได้ของท่านเพียงพอต่อการดำรงชีวิตของตัวท่านเองหรือไม่	□1.ไม่เพียงพอใช้จ่าย และเป็นหนี้ □2.ไม่เพียงพอใช้จ่ายไม่เป็นหนี้ □3.เพียงพอใช้จ่าย แต่ไม่เหลือเก็บ □4.เพียงพอใช้จ่าย และเหลือเก็บ
9.จำนวนบุตร	.....คน

10.ปัจจุบันท่านพักอาศัยอยู่ในครัวเรือนเดียวกันกับใครกี่คน	☐0.อยู่คนเดียว ☐1.อยู่กับผู้อื่น.....คน ประกอบด้วย(ตอบได้มากกว่า 1 ข้อ) ☐1.สามี/ภรรยา ☐2.บุตรชาย ☐3.บุตรสาว ☐4.บุตรเขย /บุตรสะใภ้ ☐5.หลาน ☐6.ญาติ ☐7. อื่นๆ (ระบุ) .....
11. บุคคลที่ดูแลท่านเป็นประจำ	☐ 0. ไม่มี ☐ 1. สามี/ภรรยา ☐2.บุตรชาย ☐ 3. บุตรสาว ☐4.บุตรเขย /บุตรสะใภ้ ☐5.หลาน ☐6.ญาติ ☐7.อื่นๆ (ระบุ).....
12.ท่านมีโรคประจำตัว (ที่วินิจฉัยโดยแพทย์) หรือไม่	☐0. ไม่มี / ไม่ทราบ ☐1.มี (ตอบได้มากกว่า 1) **☐1. โรคหัวใจและหลอดเลือด** ☐1.รักษาหายขาดแล้ว ☐2.กำลังรักษา ☐3.ไม่ได้รักษา **☐2. โรคไขมันในเลือดสูง** ☐1.รักษาหายขาดแล้ว ☐2.กำลังรักษา ☐3.ไม่ได้รักษา **☐3. โรคความดันโลหิตสูง** ☐1.รักษาหายขาดแล้ว ☐2.กำลังรักษา ☐3.ไม่ได้รักษา **☐4. โรคเบาหวาน** ☐1.รักษาหายขาดแล้ว ☐2.กำลังรักษา ☐3.ไม่ได้รักษา **☐5. กลุ่มโรคกระดูกและข้อ** ☐1.รักษาหายขาดแล้ว ☐2.กำลังรักษา ☐3.ไม่ได้รักษา **☐6. อื่นๆระบุ.....** ☐1.รักษาหายขาดแล้ว ☐2.กำลังรักษา ☐3.ไม่ได้รักษา

สภาวะน้ำท่วม

1. บ้านท่านได้รับผลกระทบน้ำท่วม หรือไม่	□0. ไม่ได้ □1.ได้ (ตอบได้มากกว่า 1) ระบุพื้นที่น้ำท่วม □1.บ้าน □2.นา □3.ไร่เผือก □ 4. อื่นๆ ระบุ.....
2. ความสูงของระดับน้ำในบริเวณบ้าน	□1.ระดับข้อเท้า □2.ระดับเข่า □3.ระดับเอว □ 4. สูงกว่าระดับเอว
3. ระยะเวลาน้ำท่วม	**..... เดือน.....วัน**
4. ครอบครัวท่านย้าย/อพยพไปพักที่อื่นหรือไม่ในขณะน้ำท่วม	□0.ไม่ไป□1.ไป ระบุ จังหวัด..... □ อพยพไปก่อนน้ำท่วมเป็นเวลา ..... เดือน .....วัน □ อพยพไปหลังจากน้ำท่วมแล้วเป็นเวลา..... เดือน .....วัน
5. ท่านย้าย/อพยพไปพักที่อื่นพร้อมคนในครอบครัวหรือไม่	□0.ไม่ไป□1.ไป
6. เหตุผลที่ไม่อพยพไปพร้อมครอบครัวหรือไม่ไปเพราะ	ตอบได้มากกว่า 1 □1.ห่วงบ้าน/ของ □2.ห่วงสัตว์เลี้ยง □3.ห่วงไร่ นา □ 4. ต้องอยู่ดูแลบ้านหากมีใครมาติดต่อ□5. ไม่คุ้นเคยที่จะไปอยู่ที่อื่น □6. ไม่ต้องการเป็นภาระ □7. ไม่มีที่อื่นไป □7. ไม่แข็งแรงไม่อยากเคลื่อนย้าย□ 8. อื่นๆ.....

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ส่วนที่ 2ความรู้ ทัศนคติ และการปฏิบัติตัวเกี่ยวกับการเตรียมตัวรับมือกับการประสบอุทกภัย ในช่วงก่อนน้ำท่วม ขณะเกิดน้ำท่วม และหลังน้ำท่วม

1. ความรู้เกี่ยวกับการเตรียมตัวรับมือกับการประสบอุทกภัยในช่วงก่อนน้ำท่วม ขณะเกิดน้ำท่วม และหลังน้ำท่วม			
คำถาม	**ใช่**	**ไม่ใช่**	**ไม่ทราบ**
1. น้ำท่วมเป็นสาเหตุของการปนเปื้อนในน้ำและการกัดกร่อนของดิน			
2. ท่านคิดว่านี่คือคำจำกัดความของการเตรียมตัวรับมือกับน้ำท่วม “การกระทำของแต่ละบุคคลหรือครอบครัวเพื่อป้องกัน ปกป้อง ต่อต้าน และลดความเสียหายทั้งทางกายภาพและทางอารมณ์ที่เป็นผลมาจากการเกิดภาวะน้ำท่วม”			
3. เมื่อรัฐบาลประกาศให้มีการสำรองอาหาร ท่านควรจะเตรียมสิ่งจำเป็นพื้นฐาน และย้ายขึ้นที่สูง			
4. เมื่อท่านทราบว่าจะเกิดน้ำท่วม ควรนำพาหนะที่มีและสัตว์เลี้ยงไปเก็บไว้ในที่น้ำท่วมไม่ถึง			
5. ควรจดบันทึกหมายเลขโทรศัพท์สำหรับเหตุการณ์ฉุกเฉินและเก็บไว้ตามที่จำง่าย			
6. ควรอุดปิดช่องทางน้ำทิ้ง อ่างล้างจาน และพื้นที่ห้องน้ำและสุขภัณฑ์ที่น้ำสามารถไหลเข้าบ้านได้			
7. ควรเรียนรู้เส้นทางการเดินทางที่ปลอดภัยที่สุดจากบ้านไปยังพื้นที่สูงหรือพื้นที่ปลอดภัย และถ้าหากไม่มีที่ปลอดภัยบนที่สูง ควรรับฟังข้อมูลจากวิทยุหรือโทรทัศน์เกี่ยวกับสถานที่หลบภัยของหน่วยงานต่างๆ			

8. ไม่ควรทำความคุ้นเคยกับระบบเตือนภัยต่างๆ ของหน่วยงานที่เกี่ยวข้องและขั้นตอนในการอพยพเมื่อยามจำเป็น			
9. ท่านควรเตรียมอาหารแห้ง อาหารกระป๋องไว้ก่อนที่น้ำจะท่วมชุมชนของท่าน			
10. ท่านควรเตรียมยาและชุดปฐมพยาบาลก่อนที่น้ำจะท่วมถึงชุมชนของท่าน			
11. ท่านควรเตรียมเสื้อผ้าและเอกสารสำคัญก่อนที่น้ำจะท่วมถึงชุมชนของท่าน			
12. ผู้ที่อาศัยอยู่ในพื้นที่เสียงภัยน้ำท่วม ควรเตรียมวัสดุ เช่น กระสอบทราย แผ่นพลาสติก ไม้แผ่น ตะปู ค้อนหรือกาวซิลิโคนเพื่อไว้กันน้ำเข้าบ้านเรือน			
13. ท่านสามารถคาดการณ์เรื่องน้ำท่วมได้จากพฤติกรรมของสัตว์			
14. เป็นสิ่งจำเป็นที่ท่านต้องอยู่อย่างตื่นตัวจากข่าวสารเรื่องน้ำท่วมทางวิทยุหรือโทรทัศน์			
15. เป็นสิ่งจำเป็นที่ท่านต้องอพยพถ้าเกิดสถานการณ์น้ำท่วมที่แย่มากในบริเวณที่ท่านอยู่อาศัย			
16. การตัดกระแสไฟฟ้าก่อนเกิดน้ำท่วมสูงสามารถป้องกันความเสี่ยงต่อการเสียชีวิตจากกระแสไฟฟ้าได้			
17. น้ำท่วมเป็นน้ำที่มีการปนเปื้อน			
18. การล้างมือก่อนรับประทานอาหารหรือดื่มน้ำสามารถช่วยท่านป้องกันการติดเชื้อจากเชื้อราและแบคทีเรียได้ในช่วงขณะเกิดน้ำท่วม			

19. การล้างมือหรือดื่มน้ำจากน้ำที่ท่วมสูงและขังเป็นเวลานานไม่เป็นปัญหาต่อสุขภาพ			
20. เมื่อน้ำท่วม ให้ระวังการใช้รถหรือถนน การลื่นล้ม และการจมน้ำ			
21. การตั้งสติไม่ตกใจหรือกลัวจนขาดสติ เป็นสิ่งจำเป็นเมื่อเกิดภาวะน้ำท่วม			
22. ในช่วงขณะเกิดน้ำท่วมเมื่อท่านเกิดอาการเจ็บป่วย ควรไปพบแพทย์หรือบอกคนในบ้านให้รับทราบโดยเร็ว			
23. หลังจากน้ำท่วมการตรวจสอบระบบกระแสไฟฟ้าและอุปกรณ์ต่างๆภายในบ้านเป็นสิ่งจำเป็นอย่างยิ่ง			
24. น้ำท่วมทำให้เกิดโรคต่างๆ เช่น โรคอุจจาระร่วง โรคน้ำกัดเท้า และโรคฉี่หนูเป็นต้น			
25. น้ำท่วมทำให้มีสัตว์ร้ายหรือสัตว์ที่มีพิษเข้ามาในบ้านได้ เช่น งู ตะขาบหรือแมงป่อง			
26. การฟังข่าวรับข้อมูลจากโทรทัศน์หรือวิทยุทำให้ท่านไม่ตกข่าวสารเกี่ยวกับสถานการณ์น้ำท่วม			

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2. ทัศนคติกี่ยวกับการเตรียมตัวรับมือกับการประสบอุทกภัยในช่วงก่อนน้ำท่วม ขณะเกิดน้ำท่วม และหลังน้ำท่วม			
คำถาม	**เห็นด้วย**	**เฉยๆ**	**ไม่เห็นด้วย**
1. น้ำท่วมเกิดขึ้นบ่อยๆในชุมชนของท่านท่านจึงคิดว่าเป็นเรื่องธรรมดาสำหรับท่าน			
2. ท่านคิดว่าไม่จำเป็นต้องการเตรียมเสื้อผ้า อาหาร และยาก่อนเกิดน้ำท่วม			
3. ท่านไม่กลัวการเกิดความหายนะจากการเกิดน้ำท่วม			
4. ท่านคิดว่าข้อมูลสาธารณะเกี่ยวกับเรื่องน้ำท่วมที่ให้กับชุมชนเป็นสิ่งสำคัญ			
5. ท่านเตรียมตัวรับมือกับสถานการณ์น้ำท่วมที่จะเกิดขึ้นอย่างมีสติ			
6. ท่านคิดว่าการมีความรู้ในการเตรียมรับมือกับน้ำท่วมเป็นสิ่งสำคัญ			
7. ท่านใส่ใจกับเรื่องน้ำท่วมและผลที่ตามมาจากการเกิดน้ำท่วม			
8. ท่านคิดว่าไม่จำเป็นต้องอพยพในช่วงขณะเกิดน้ำท่วม			
9. ถ้าหากมีสิ่งใดเกิดขึ้นกับท่านหรือครอบครัวของท่านในช่วงขณะเกิดน้ำท่วมมันคงจะเป็นเคราะห์กรรม			
10. ท่านคิดว่าปลอดภัยที่จะว่ายน้ำในน้ำที่ท่วม			
11. ท่านคิดว่าท่านสามารถเตรียมสิ่งจำเป็นพื้นฐานสำหรับตัวท่านเองก่อนเกิดน้ำท่วมได้			

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12. ท่านคิดว่าท่านสามารถมีดำรงชีวิตได้ในช่วงขณะเกิดน้ำท่วมแม้ว่าน้ำยังคงท่วมในบริเวณที่ท่านอยู่เป็นเวลามากกว่า 2 เดือน			
13. ท่านอาจเกิดอุบัติเหตุลื่นหกล้มได้ในขณะเกิดน้ำท่วม			
14. ท่านไม่คิดว่าท่านจะมีความเครียดหลังจากที่เกิดน้ำท่วมอย่างรุนแรง			
15. ท่านไม่คิดว่าจะมีใครหรือหน่วยงานใดสามารถช่วยเหลือท่านได้ในขณะเกิดน้ำท่วมและภายหลังน้ำท่วมผ่านไปแล้ว			

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3. การปฏิบัติตัวกี่ยวกับการเตรียมตัวรับมือกับการประสบอุทกภัยในช่วงก่อนน้ำท่วม ขณะเกิดน้ำท่วม และหลังน้ำท่วม			
คำถาม	**ใช่**	**ไม่ใช่**	**ไม่ทราบ**
1. เมื่อท่านได้ยินข่าวเกี่ยวกับน้ำท่วมที่จะมาถึงชุมชนของท่าน ท่านไม่จำเป็นต้องเตรียมยา			
2. เมื่อท่านได้ยินข่าวเกี่ยวกับน้ำท่วมที่จะมาถึงชุมชนของท่าน ท่านจะเตรียมเสื้อผ้าก่อนที่น้ำท่วมจะมาถึง			
3. เมื่อท่านได้ยินข่าวเกี่ยวกับน้ำท่วมที่จะมาถึงชุมชนของท่าน ท่านจะเตรียมอาหารแห้งอาหารกระป๋องก่อนที่น้ำท่วมจะมาถึง			
4. ก่อนที่น้ำจะท่วมถึงชุมชนของท่าน ท่านต้องเตรียมเอกสารสำคัญ เช่น บัตรประชาชน บันทึกประวัติสุขภาพ เบอร์โทรศัพท์ติดต่อที่จำเป็น			
5. ก่อนที่น้ำจะท่วมถึงชุมชนของท่าน ท่านไม่จำเป็นต้องเตรียมชุดปฐมพยาบาลเบื้องต้น			
6. ก่อนที่น้ำจะท่วมถึงชุมชนของท่าน ท่านต้องเตรียมของก่อนโดนตัดไฟฟ้า เช่น เทียนไข ไฟฉาย และแบตเตอรี่			
7. ท่านต้องฟังข่าวสารเกี่ยวกับสถานการณ์น้ำท่วมทางวิทยุหรือโทรทัศน์เพื่อให้ตื่นตัวอยู่เสมอ			
8. ท่านไม่จำเป็นต้องให้ความร่วมมือกับหน่วยบริการฉุกเฉินถ้าหากพวกเขาบอกให้ท่านอพยพในขณะเกิดน้ำ			

9. ในขณะเกิดน้ำท่วมบ้านสูง ท่านต้องตัดกระแสไฟฟ้าเพื่อป้องกันอุบัติเหตุจากกระแสไฟฟ้า			
10. ท่านล้างมือก่อนรับประทานอาหารเสมอในช่วงน้ำท่วม			
11. ท่านไม่ทำความสะอาดแผลจากการถูกทิ่มตำหรือถูกบาดเล็กน้อยด้วยสบู่และน้ำสะอาด			
12. ถ้าฉันต้องเดินผ่านน้ำท่วม ฉันต้องระมัดระวังเป็นอย่างมาก ฉันอาจเกิดอุบัติเหตุลื่นล้มได้			
13. ท่านดื่มน้ำจากน้ำท่วมที่ท่วมขัง			
14. ท่านมักอยู่นอกบริเวณที่มีน้ำท่วมให้มากที่สุดเท่าที่เป็นไปได้			
15. ท่านล้างเครื่องครัวด้วยน้ำจากน้ำท่วม			
16. ท่านใส่รองเท้าบูธยางเมื่อเดินลุยน้ำท่วมออกไป			
17. หลังน้ำท่วมท่านพบแพทย์ในทันทีที่ท่านเกิดการเจ็บป่วย หรือบอกให้ครอบครัวของท่านได้รับรู้ถึงสถานการณ์ของท่านในทันที			
18. ท่านระวังสุขลักษณะส่วนบุคคล เช่น การล้างมือก่อนรับประทานอาหารและดื่มน้ำถึงแม้ว่าน้ำท้วมจะผ่านพ้นไปแล้ว			
19. ท่านตรวจสอบสายไฟ ปลั๊กไฟ อุปกรณ์ไฟฟ้าภายในบ้านเพื่อให้แน่ใจว่าปลอดภัยหลังจากน้ำท่วมสิ้นสุดลงแล้ว			
20. แม้ว่าน้ำท่วมได้ผ่านพ้นไปแล้ว ท่านยังคงตรวจสอบข้อมูลน้ำท่วมจากข่าวท้องถิ่นและรัฐบาลที่ได้มีการรายงานสถานการณ์ล่าสุด			

Appendix D: Qualitative Study Interview Guidelines (Thai Version)

ภาคผนวก D: แนวทางการศึกษาเชิงคุณภาพ
แนวทางการให้สัมภาษณ์

ต่อไปนี้เป็นคู่มือที่ผู้วิจัยใช้เป็นแนวทางในกระบวนการของการสัมภาษณ์กับผู้ให้ข้อมูลคนสำคัญ

บทนำ:

ดิฉันขอขอบคุณท่านที่สละเวลามาให้สัมภาษณ์กับดิฉันในวันนี้ดิฉันนางสาวเสาวลักษณ์ ดุลยพีรดิส มีความประสงค์ที่จะขอสัมภาษณ์ประสบการณ์ของท่านเกี่ยวกับสถานการณ์น้ำท่วมในช่วงพ.ศ. 2554 การสัมภาษณ์จะใช้เวลาไม่เกินหนึ่งชั่วโมงโดยดิฉันจะทำการบันทึกเทปพร้อมทั้งจดบันทึกข้อความไปด้วยเพื่อให้ได้ความคิดเห็นของท่านอย่างครบถ้วน คำตอบของท่านทั้งหมดจะถูกเก็บไว้เป็นความลับ และใช้ข้อมูลนี้ร่วมกับสมาชิกในทีมวิจัยเท่านั้น โดยแน่ใจว่าข้อมูลใด ๆ ที่รวบรวมไว้ในรายงานจะไม่ระบุตัวตนของท่าน และท่านไม่จำเป็นต้องตอบคำถามในสิ่งที่ท่านไม่สะดวกใจจะตอบและสามารถขอสิ้นสุดการสัมภาษณ์ได้ทุกเวลา
ท่านมีคำถามเกี่ยวกับสิ่งที่ดิฉันได้อธิบายหรือไม่
ท่านยินดีที่จะเข้าร่วมในการสัมภาษณ์ครั้งนี้หรือไม่

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_____	_____	_____
ผู้ให้สัมภาษณ์	พยาน	วัน/เดือน/ปี

<u>แนวทางในการสัมภาษณ์ผู้สูงอายุ</u>

คำถาม:

1. โปรดบอกเล่าประสบการณ์ของท่านเกี่ยวกับเหตุการณ์น้ำท่วมในปี พ.ศ. 2554
2. ท่านได้คาดหวังไว้หรือไม่ว่าจะเกิดน้ำท่วมใหญ่ขึ้นในชุมชนของท่าน และเหตุผลคืออะไร
3. ท่านได้รับข้อมูลข่าวสารเกี่ยวกับน้ำท่วมหรือไม่จากแหล่งใดบ้าง
4. ท่านดูแลตนเองอย่างไรก่อนน้ำท่วมโปรดอธิบาย
5. ท่านดูแลตนเองอย่างไรในช่วงน้ำท่วมโปรดอธิบาย
6. ท่านดูแลตนเองอย่างไรหลังน้ำท่วมโปรดอธิบาย
7. ท่านคิดว่าน้ำท่วมมีผลกระทบอย่างรุนแรงกับชุมชนและตัวของท่านเองหรือไม่โปรดอธิบาย

ความเห็นเพิ่มเติม:

10. ท่านมีข้อคิดเห็นใดๆเพิ่มเติมหรือไม่

ปิด:

ดิฉันจะทำการวิเคราะห์ข้อมูลของท่านและทุกคนที่ให้สัมภาษณ์โดยดิฉันยินดีที่จะส่งสำเนาผลการวิเคราะห์ข้อมูลไปให้ถ้าหากท่านต้องการ ขอขอบคุณสำหรับเวลาของท่าน

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<u>แนวทางในการ อสม. สัมภาษณ์ผู้ดูแลครอบครัว, ผู้นำชุมชน, พยาบาล, และคณะกรรมการของโรงพยาบาลส่งเสริมสุขภาพ</u>

คำถาม:

1. ได้โปรดบอกเล่าประสบการณ์ของท่านเกี่ยวกับเหตุการณ์น้ำท่วมในปี พ.ศ. 2554
2. ท่านได้คาดหวังไว้หรือไม่ว่าเหตุการณ์ดังกล่าวนี้จะเกิดขึ้นในชุมชนของท่าน และเหตุผลคืออะไร
3. ท่านได้รับข้อมูลข่าวสารเกี่ยวกับน้ำท่วมจากแหล่งใดบ้าง
4. ท่านดูแลผู้สูงอายุอย่างไรก่อนน้ำท่วมช่วงน้ำท่วม และหลังน้ำท่วม โปรดอธิบาย
5. ท่านพบว่าผู้สูงดูแลตนเองอย่างไรก่อนน้ำท่วม ช่วงน้ำท่วม หลังน้ำท่วมโปรดอธิบาย
6. ในความคิดของท่าน ท่านคิดว่าควรมีวิธีการอย่างไรในการดูแลผู้สูงอายุในช่วงน้ำท่วม

ความเห็นเพิ่มเติม:

7. ท่านมีข้อคิดเห็นใดๆเพิ่มเติมหรือไม่

ปิด:

ดิฉันจะทำการวิเคราะห์ข้อมูลของท่านและทุกคนที่ให้สัมภาษณ์ โดยดิฉันยินดีที่จะส่งสำเนาผลการวิเคราะห์ข้อมูลไปให้ถ้าหากท่านต้องการ ขอขอบคุณสำหรับเวลาของท่าน

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แนวทางการสนทนากลุ่ม

สวัสดีค่ะ ดิฉัน นางสาว เสาวลักษณ์ ดุลยพีรดิส และผู้ช่วยนักวิจัย เรามีความยินดีเป็นอย่างยิ่ง ที่ท่านเข้าร่วมการสนทนากลุ่มในวันนี้ ในการสนทนาวันนี้จะเป็นเรื่องเกี่ยวกับเหตุการณ์น้ำท่วมที่เกิดขึ้นในปี พ.ศ. 2554 การสนทนาในครั้งนี้ เรียกว่าการสนทนากลุ่ม สำหรับผู้ที่ไม่เคยเข้าร่วมในการสนทนานี้มาก่อน ดิฉันขออธิบายเล็กน้อยเกี่ยวกับงานวิจัยนี้

การสนทนากลุ่ม เป็นการรวบรวมข้อมูลรายบุคคลจากกลุ่มเล็กๆที่มีความสนใจร่วมกัน โดยเฉพาะอย่างยิ่ง ผู้สูงอายุ และผู้ดูแลผู้สูงอายุ และอาสาสมัครสาธารณสุขประจำหมู่บ้าน ผู้มีส่วนร่วมในการสนทนาครั้งนี้ โดยสารสนทนากลุ่มครั้งนี้ ไม่มีคำตอบที่ถูกหรือผิด เราต้องการรับฟังความคิดเห็นของทุกท่าน เรามีความยินดีที่ท่านร่วมเป็นส่วนหนึ่งของงานวิจัยนี้ เนื่องจากข้อเสนอแนะ และความคิดเห็นจากประสบการณ์ของท่านมีความสำคัญอย่างยิ่ง ท่านสามารถแสดงความคิดเห็นได้ทันทีหากท่านต้องการ ดิฉันจะเป็นผู้ดูแลการสนทนาในครั้งนี้ เราจะมีการบันทึกการสนทนาในครั้งนี้ สำหรับทบทวนข้อคิดเห็นของท่าน เพื่อให้ข้อมูล, ข้อคิดเห็น มีความถูกต้องสมบูรณ์

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คำถาม:

1. ท่านตระหนักถึงเหตุการณ์น้ำท่วมในปี พ.ศ. 2554 หรือไม่ และท่านได้รับรู้มาก่อนหรือไม่ว่าจะเกิดเหตุการณ์น้ำท่วมกับชุมชนของท่าน
2. ท่านได้รับข้อมูลน้ำท่วมจากแหล่งใดบ้างในช่วงก่อน, ระหว่าง และหลังเกิดเหตุการณ์น้ำท่วม
3. สำหรับผู้สูงอายุ, โดยทั่วไปก่อนเกิดเหตุการณ์น้ำท่วม ท่านดูแลตนเองอย่างไร

4. สำหรับผู้สูงอายุ, เมื่อเกิดเหตุการณ์น้ำท่วม ท่านดูแลตนเองอย่างไร
5. สำหรับผู้สูงอายุ, หลังเกิดเหตุการณ์น้ำท่วม ท่านดูแลตนเองอย่างไร
6. สำหรับผู้ดูแลผู้สูงอายุ, ท่านมีบทบาทในการดูแลผู้สูงอายุอย่างไร
7. สำหรับผู้ดูแลผู้สูงอายุ, ท่านจัดการกับปัญหาน้ำท่วมอย่างไรบ้าง และขณะเดียวกันท่านดูแลผู้สูงอย่างไร
8. สำหรับอาสาสมัครสาธารณสุขประจำหมู่บ้าน, ท่านมีบทบาทในชุมชนอย่างไร ในช่วงก่อน, ระหว่าง และหลังเกิดเหตุการณ์น้ำท่วม
9. ผู้สูงอายุดูแลตัวเองอย่างไรในสถานการณ์ที่ไม่ยอมอพยพออกจากบ้าน
10. ท่านได้รับทราบหรือไม่ว่าจะเกิดเหตุการณ์น้ำท่วมท่านได้รับทราบข้อมูลข่าวสารจากครอบครัวหรือจากชุมชนหรือไม่

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Appendix E: Flood Preparedness Knowledge, Attitude and Practice/Intention to Practice at Baseline

Part I: Flood preparedness knowledge of the elderly at baseline between the intervention and the control groups (n=160)

Variables Knowledge	Intervention n = 80 (%)	Control n =80 (%)	Total n = 160 (%)
1. Can flood cause water contamination and soil erosion?			
Incorrect	28 (35.0)	34 (42.5)	62 (38.8)
Correct	52 (65.0)	46 (57.5)	98 (61.2)
Total	80 (100)	80 (100)	160 (100)
2. Do you think this statement is a definition for the flood preparation “an action taken by an individual or family to prevent, protect, against and minimize physical and emotional damage that result from flood”?			
Incorrect	49 (61.2)	60 (75.0)	109 (68.1)
Correct	31 (38.8)	20 (25.0)	51 (31.9)
Total	80 (100.0)	80 (100.0)	160 (100.0)
3. When local government announces the severe of the flood, should you prepare basic needs and move to higher ground?			
Incorrect	27 (33.8)	23 (28.8)	50 (31.2)
Correct	53 (66.2)	57 (71.2)	110 (68.8)
Total	80 (100.0)	80 (100.0)	160 (100.0)

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4. When local government announces the severe of the flood, should you move your vehicles and pets to dry place?

Incorrect	16 (20.0)	14 (17.5)	30 (18.8)
Correct	64 (80.0)	66 (82.5)	130 (81.2)
Total	80 (100.0)	80 (100.0)	160 (100)

5. Should you write down important telephone numbers and keep it where you can easily remember?

Incorrect	37 (46.2)	33 (41.2)	70 (43.8)
Correct	43 (53.8)	47 (58.8)	90 (56.2)
Total	80 (100.0)	80 (100.0)	160 (100)

6. Should you have large corks or stoppers to plug shower tubs, or basins from water rising up through the pipe?

Incorrect	17 (21.2)	9 (11.2)	26 (16.2)
Correct	63 (78.8)	71 (88.8)	134 (83.3)
Total	80 (100.0)	80 (100.0)	160 (100)

7. Should you learn about the safest route in order to evacuate to higher ground from the media such as radio or television?

Incorrect	21(26.2)	21 (26.2)	42 (26.2)
Correct	59 (73.8)	59 (73.8)	118 (73.8)
Total	80 (100.0)	80 (100.0)	160 (100)

8. Should you get used to the flood warning system provided by the local government?

Incorrect	36(45.0)	29 (36.2)	65 (40.6)
Correct	44 (55.0)	51(63.8)	95 (59.4)
Total	80 (100.0)	80 (100.0)	160 (100)

9. Should you prepare dry, canned food before flood come to your community?

Incorrect	9 (11.2)	2 (2.5)	11 (6.9)
Correct	71 (88.8)	78 (97.5)	149 (93.1)
Total	80 (100.0)	80 (100.0)	160 (100)

10. Should you prepare medicine and first aid kit before flood come to your community?

Incorrect	29 (36.2)	18 (22.5)	47 (29.4)
Correct	51 (63.8)	62 (77.5)	113 (70.6)
Total	80 (100.0)	80 (100.0)	160 (100)

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11. Should you prepare clothing and copies of important documents before flood come to your community?

Incorrect	15 (18.8)	3 (3.8)	18 (11.2)
Correct	65 (81.2)	77 (96.2)	142 (88.8)
Total	80 (100.0)	80 (100.0)	160 (100)

12. Should you prepare materials that can prevent your home from flood water?

Incorrect	30 (37.5)	13 (16.2)	43 (26.9)
Correct	50 (62.5)	67 (83.8)	117 (73.1)
Total	80 (100.0)	80 (100.0)	160 (100)

13. Is it true you can only forecast flood from animal behaviors?

Incorrect	69 (86.2)	26 (32.5)	95 (59.4)
Correct	11 (13.8)	54 (67.5)	65 (40.6)
Total	80 (100.0)	80 (100.0)	160 (100)

14. Is it important to stay alert about flood situation from radio/TV?

Incorrect	26 (32.5)	31 (38.8)	57 (35.6)
Correct	54 (76.5)	49 (61.2)	103 (64.4)
Total	80 (100.0)	80 (100.0)	160 (100)

15. Is it important to evacuate if flood situation in your area is really bad?

Incorrect	18 (22.5)	29 (36.2)	47 (29.4)
Correct	62 (77.5)	51 (63.8)	113 (70.6)
Total	80 (100.0)	80 (100.0)	160 (100)

16. Can turning off electricity during flood prevent the risk of electrocution?

Incorrect	18 (22.5)	23 (28.8)	41 (25.6)
Correct	62 (77.5)	57 (71.2)	119 (74.4)
Total	80 (100.0)	80 (100.0)	160 (100)

17. Is flood water contaminated?

Incorrect	7 (8.8)	13 (16.2)	20 (12.5)
Correct	73 (91.2)	67 (83.8)	140 (87.5)
Total	80 (100.0)	80 (100.0)	160 (100)

18. Can hand washing before eating or drinking keep your health away from germ and bacteria during flood?

Incorrect	11 (13.8)	18 (22.5)	29 (18.1)
Correct	69 (86.2)	62 (77.5)	131 (81.9)
Total	80 (100.0)	80 (100.0)	160 (100)

19. Is it ok to drink or wash hands from flood water?

Incorrect	38 (47.5)	26 (32.5)	64 (40.0)
Correct	42 (52.5)	54 (67.5)	96 (60.0)
Total	80 (100.0)	80 (100.0)	160 (100)

20. It is important to be aware of accidents such as falling and drowning during flood?

Incorrect	22 (27.5)	21 (26.2)	43 (26.9)
Correct	58 (72.5)	59 (73.8)	117 973.1)
Total	80 (100.0)	80 (100.0)	160 (100)

21. Is it important to stay calm when you know that your area is at risk of flooding?

Incorrect	26 (32.5)	27 (33.8)	53 (33.1)
Correct	54 (67.5)	53 (66.2)	107 (66.9)

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Total	80 (100.0)	80 (100.0)	160 (100)

22. Do you think seeking medical attention if you become sick or ill, or let your family know about your situation immediately important action to do?

Incorrect	18 (22.5)	14 (17.5)	32 (20.0)
Correct	62 (77.5)	66 (82.5)	128 (80.0)
Total	80 (100.0)	80 (100.0)	160 (100)

23. After flood, does checking electricity system and appliances within your home necessary?

Incorrect	16 (20.0)	22 (27.5)	38 (23.8)
Correct	64 (80.0)	58 (72.5)	122 (76.2)
Total	80 (100.0)	80 (100.0)	160 (100)

24. Can leptospirosis, diarrhea, or athlete's foot happen during flood?

Incorrect	15 (18.8)	19 (23.8)	34 (21.2)
Correct	65 (81.2)	61 (76.2)	126 (78.0)
Total	80 (100.0)	80 (100.0)	160 (100)

25. Can poisonous animals come in your homes during flood?

Incorrect	13 (16.2)	22 (27.5)	35 (21.9)
Correct	67 (83.8)	58 (72.5)	125 (78.1)
Total	80 (100.0)	80 (100.0)	160 (100)

26. Can information checking from TV/radio keep you update about the flood situation?

Incorrect	13 (16.2)	19 (23.8)	32 (20.0)
Correct	67 (83.8)	61 (76.2)	128 (80.0)
Total	80 (100.0)	80 (100.0)	160 (100)

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Part II: Flood preparedness attitude of the elderly at baseline between intervention and control groups (n=160).

Variables Knowledge	Intervention n = 80 (%)	Control n =80 (%)	Total n = 160 (%)
1. Flood often occurs in my community, so I think flood is normal for me.			
Do not agree	30 (37.5)	38 (47.5)	62 (38.8)
Neutral	12 (15.0)	18 (22.5)	30 (18.8)
Agree	38 (47.5)	24 (30.0)	68 (42.5)
Total	80 (100.0)	80 (100.0)	160 (100)
2. I think it is not necessary to prepare clothing, food, and medicine before flood.			
Do not agree	25 (31.2)	36 (45.0)	61 (38.1)
Neutral	12 (15.0)	14 (17.5)	26 (16.2)
Agree	43 (53.8)	30 (37.5)	73 (45.6)
Total	80 (100.0)	80 (100.0)	160 (100)
3. I am not afraid of flood disaster.			
Do not agree	26 (32.5)	33 (41.2)	59 (36.9)
Neutral	8 (10.0)	20 (25.0)	28 (17.5)
Agree	46 (57.5)	27 (33.8)	73 (45.6)
Total	80 (100.0)	80 (100.0)	160 (100)

4. I think public information regarding to flood provided for the community is important.

Do not agree	0 (0.0)	0 (0.0)	0(0.0)
Neutral	6 (7.5)	14 (17.5)	20 (12.5)
Agree	74 (92.5)	66 (82.5)	140 (87.5)
Total	80 (100.0)	80 (100.0)	160 (100)

5. I think stay clam is an important action to do during flood.

Do not agree	0 (0.0)	0 (0.0)	0(0.0)
Neutral	9 (11.2)	9 (11.2)	18 (11.2)
Agree	71 (88.8)	71 (88.8)	142 (88.8)
Total	80 (100.0)	80 (100.0)	160 (100)

6. I think it is important to have knowledge of flood preparedness.

Do not agree	0 (0.0)	0 (0.0)	0(0.0)
Neutral	24 (30.0)	23 (28.8)	47 (29.4)
Agree	56 (70.0)	57 (71.2)	113 (70.6)
Total	80 (100.0)	80 (100.0)	160 (100)

7. I care about flood and its consequences.

Do not agree	2 (2.5)	1 (1.2)	3 (1.9)
Neutral	9 (11.2)	15 (18.8)	24 (15.0)
Agree	69 (86.2)	64 (80.0)	133 (83.1)

Total	80 (100.0)	80 (100.0)	160 (100)

8. I think it is not necessary to evacuate during flood.

Do not agree	47 (58.8)	15 (18.8)	62 (38.8)
Neutral	11 (13.8)	12 (15.0)	23 (14.4)
Agree	22 (27.5)	53 (66.2)	75 (46.9)
Total	80 (100.0)	80 (100.0)	160 (100)

9. If something happens to me or my family during flood, it is a fate.

Do not agree	14 (17.7)	63 (78.8)	77 (48.1)
Neutral	13 (16.2)	14 (17.5)	27 (16.9)
Agree	53 (66.2)	3 (3.8)	56 (35.0)
Total	80 (100.0)	80 (100.0)	160 (100)

10. I think it is safe to swim in flood water.

Do not agree	62 (77.5)	65 (81.2)	127 (79.4)
Neutral	4 (5.0)	4 (5.0)	8 (5.0)
Agree	14 (17.5)	11 (13.8)	25 (15.6)
Total	80 (100.0)	80 (100.0)	160 (100)

11. I think I am capable of preparing basic needs for myself before flood.

Do not agree	5 (6.2)	7 (8.8)	12 (7.5)
Neutral	1 (1.2)	4 (5.0)	5 (3.1)
Agree	74 (92.5)	69 (86.2)	143 (89.4)

Total	80 (100.0)	80 (100.0)	160 (100)

12. I can survive during flood even though the flood persists in my area more than two months.

Do not agree	12 (15.0)	32 (40.0)	44 (27.5)
Neutral	2 (2.5)	5 (6.2)	7 (4.4)
Agree	66 (82.5)	43 (53.8)	109 (68.1)
Total	80 (100.0)	80 (100.0)	160 (100)

13. I may have an accident during flood such as falling or drowning.

Do not agree	0 (0.0)	0 (0.0)	0(0.0)
Neutral	5 (6.2)	7 (8.8)	12 (7.5)
Agree	75 (93.8)	73 (91.2)	148 (92.5)
Total	80 (100.0)	80 (100.0)	160 (100)

14. I do not think I will have stress after severe flooding.

Do not agree	23 (28.8)	8 (10.0)	31 (19.4)
Neutral	26 (32.5)	34 (42.5)	60 (37.5)
Agree	31 (38.8)	38 (47.5)	69 (43.1)
Total	80 (100.0)	80 (100.0)	160 (100)

15. I do not think anyone or any organizations can help me during and after flood.

Do not agree	43 (53.8)	48 (60.0)	91 (56.9)
Neutral	12 (15.0)	28 (35.0)	40 (25.0)

Agree	25 (31.2)	4 (5.0)	29 (18.1)
Total	80 (100.0)	80 (100.0)	160 (100)

Part III: Flood preparedness practice/intention to practice of the elderly at baseline between intervention and control groups (n=160)

Variables Intention to Practice	Intervention n = 80 (%)	Control n =80 (%)	Total n = 160 (%)
1. When I hear the news about flood coming to my community, I will prepare medicine before it comes.			
No	31 (38.8)	31 (38.8)	62 (38.8)
Yes	49 (61.2)	49 (61.2)	98 (61.2)
Total	80 (100.0)	80 (100.0)	160 (100)
2. When I hear the news about flood coming to my community, I will prepare clothing before it comes.			
No	25 (31.2)	40 (50.0)	65 (40.6)
Yes	55 (68.8)	40 (50.0)	95 (59.4)
Total	80 (100.0)	80 (100.0)	160 (100)
3. When I hear the news about flood coming to my community, I will prepare dry, canned food.			
No	26 (32.5)	28 (35.0)	54 (33.8)
Yes	54 (67.5)	52 (65.0)	106 (66.2)
Total	80 (100.0)	80 (100.0)	160 (100)

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4. Before flood comes to my community, I have to prepare copies of important documents such as identification care or medical record.

No	21 (26.2)	25 (31.2)	46 (28.8)
Yes	59 (73.8)	55 (68.8)	114 (71.2)
Total	80 (100.0)	80 (100.0)	160 (100)

5. Before flood comes to my community, I have to prepare first aid kit.

No	44 (55.0)	36 (45.0)	84 (52.50)
Yes	36 (45.0)	40 (50.0)	76 (47.5)
Total	80 (100.0)	80 (100.0)	160 (100)

6. Before flood comes to my community, I have to prepare for loss power such as candles, flashlights, and batteries.

No	18 (22.5)	62 (77.5)	40 (25.0)
Yes	22 (27.5)	58 (72.5)	120 (75.0)
Total	80 (100.0)	80 (100.0)	160 (100)

7. I have to listen to the TV/radio for more information to stay alert about the flood situation.

No	23 (28.8)	57 (71.2)	43 (26.9)
Yes	20 (25)	60 (75.0)	117 (73.1)
Total	80 (100.0)	80 (100.0)	160 (100)

8. I have to corporate with the emergency service if they tell me to evacuate during flood.

No	40 (50.0)	19 (23.8)	59 (36.9)
Yes	40 (50.0)	61 (76.2)	101 (63.1)
Total	80 (100.0)	80 (100.0)	160 (100)

9. During flood, I have to turn off electricity in order to prevent electrocution.

No	23 (28.8)	27 (33.8)	50 (31.2)
Yes	57 (71.2)	53 (66.2)	110 (68.8)
Total	80 (100.0)	80 (100.0)	160 (100)

10. I have to wash my hands before eating or drinking because my hands may be contaminated from flood water.

No	22 (27.5)	58 (72.5)	46 (28.8)
Yes	24 (30.0)	56 (70.0)	114 (71.2)
Total	80 (100.0)	80 (100.0)	160 (100)

11. To avoid infection, I will clean minor puncture wounds, or cuts with soap and clean water.

No	36 (45.0)	28 (35.0)	64 (40.0)
Yes	44 (55.0)	52 (65.0)	96 (60.0)
Total	80 (100.0)	80 (100.0)	160 (100)

12. If I have to walk through flood, I have to be in extreme caution. I may have to walk with stick.

No	14 (17.5)	19 (23.8)	33 (20.6)
Yes	66 (82.5)	61 (76.2)	127 (79.4)
Total	80 (100.0)	80 (100.0)	160 (100)

13. I will never drink flood water.

No	24 (30.0)	2 (2.5)	26 (16.2)
Yes	56 (70.0)	78 (97.5)	134 (83.8)
Total	80 (100.0)	80 (100.0)	160 (100)

14. I will stay out of flood area as much as possible.

No	40 (50.0)	11 (13.8)	51 (31.9)
Yes	40 (50.0)	69 (86.2)	109 (68.1)
Total	80 (100.0)	80 (100.0)	160 (100)

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15. I will not wash kitchen utensils with flood water.

No	26 (32.5)	3 (3.8)	29 (18.1)
Yes	54 (67.5)	77 (96.2)	131 (81.9)
Total	80 (100.0)	80 (100.0)	160 (100)

16. I will wear rubber boots when I walk through flood water.

No	32 (40.0)	36 (45.0)	68 (42.5)
Yes	48 (60.0)	44 (55.0)	92 (57.5)

Total	80 (100.0)	80 (100.0)	160 (100)

17. I will seek immediate medical attention if I become sick or ill; or I will let my family know about my situation immediately.

No	14 (17.5)	12 (15.0)	26 (16.2)
Yes	66 (82.5)	68 (85.0)	134 (83.8)
Total	80 (100.0)	80 (100.0)	160 (100)

18. I will be aware of personal hygiene such as wash hands before eating and drinking even though flood is gone

No	20 (25.0)	26 (32.5)	46 (28.8)
Yes	60 (75.0)	54 (67.5)	114 (71.2)
Total	80 (100.0)	80 (100.0)	160 (100)

19 I will check electricity lines, plugs, appliances within my home to make sure it is safe.

No	15 (18.8)	16 (20.0)	31 (19.4)
Yes	65 (81.2)	64 (80.0)	129 (80.6)
Total	80 (100.0)	80 (100.0)	160 (100)

20 Even through flood is gone; I still will check flood information from local news and government to update the situations.

No	16 (20.0)	16 (20.0)	32 (20.0)
Yes	64 (80.0)	64 (80.0)	128 (80.0)
Total	80 (100.0)	80 (100.0)	160 (100)

Appendix F: Flood Preparedness Knowledge, Attitude and Practice/Intention to Practice among the Elderly in the Intervention Group at Baseline, 3rd Month and 6th Month

Part I: The Number and Percentage of Correct answer on Flood Preparedness Knowledge of the Elderly in the Intervention Group at Baseline, 3rd Month and 6th Month (n=80)

Statement	Correct Baseline n (%)	Correct 3rd Month n (%)	Correct 6th Month n (%)
27. Can flood cause water contamination and soil erosion?	52 (65)	76 (95.0)	56 (70.0)
28. Do you think this statement is a definition for the flood preparation “an action taken by an individual or family to prevent, protect, against and minimize physical and emotional damage that result from flood”?	31 (38.8)	38 (47.5)	43 (53.8)
29. When local government announces the severe of the flood, should you prepare basic needs and move to higher ground?	53 (66.2)	69 (86.2)	68 (85.0)
30. When local government announces the severe of the	64 (80.0)	76 (95.0)	76 (95.0)

flood, should you move your vehicles and pets to dry place?			
31. Should you write down important telephone numbers and keep it where you can easily remember?	43 (53.8)	72 (90.0)	79 (98.8)
32. Should you have large corks or stoppers to plug showers, tubs, or basins from water rising up through the pipe?	63 (78.8)	66 (82.5)	59 (73.8)
33. Should you learn about the safest route in order to evacuate to higher ground from the media such as radio or television?	59 (73.8)	80 (100)	77 (96.2)
34. Should you get used to the flood warning system provided by the local government?	44 (55.0)	67 (83.8)	58 (72.5)
35. Should you prepare dry, canned food before flood come to your community?	71 (88.8)	78 (97.5)	78 (97.5)
36. Should you prepare medicine and first aid kit before flood come to your community?	51 (63.8)	68 (85.0)	67 (83.8)
37. Should you prepare clothing and copies of important documents before flood come to your community?	65 (81.2)	72 (90.0)	73 (91.2)
38. Should you prepare materials that can prevent your home from flood water?	50 (62.5)	67 (83.8)	68 (85.0)

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39. Is it true you can only forecast flood from animal behaviors?	11 (13.8)	27 (33.8)	28 (35.0)
40. Is it important to stay alert about flood situation from radio/TV?	54 (76.5)	70 (87.5)	69 (86.2)
41. Is it important to evacuate if flood situation in your area is really bad?	62 (77.5)	79 (98.8)	74 (92.5)
42. Can turning off electricity during flood prevent the risk of electrocution?	62 (77.5)	79 (98.8)	80 (100)
43. Is flood water contaminated?	73 (91.2)	79 (98.8)	75 (93.8)
44. Can hand washing before eating or drinking keep your health away from germ and bacteria during flood?	69 (86.2)	77 (96.2)	76 (95.0)
45. Is it ok to drink or wash hands from flood water?	42 (52.5)	52(65.0)	70 (87.5)
46. It is important to be aware of accidents such as falling and drowning during flood?	58 (72.5)	79 (98.8)	79 (98.8)
47. Is it important to stay calm when you know that your area is at risk of flooding?	54 (67.5)	77 (96.2)	76 (95.0)
48. Do you think seeking medical attention if you become sick or ill, or let your family know about your situation immediately important action to do?	62 (77.5)	79 (98.8)	79 (98.8)

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49. After flood, does checking electricity system and appliances within your home necessary?	64 (80.0)	79 (98.8)	80 (100)
50. Can leptospirosis, diarrhea, or athlete's foot happen during flood?	65 (81.2)	79 (98.8)	77 (96.2)
51. Can poisonous animals come in your homes during flood?	67 (83.8)	79 (98.8)	80 (100)
52. Can information checking from TV/radio keep you update about the flood situation?	67 (83.8)	77 (96.2)	77 (96.2)

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Part II: The Number and Percentage of Flood Preparedness Attitude of the Elderly in the Intervention Group at Baseline, 3rd Month and 6th Month (n=80)

Variables Knowledge	Baseline n = 80 (%)	3rd Month n =80 (%)	6th Month n = 160 (%)
1. Flood often occurs in my community, so I think flood is normal for me.			
Do not agree	30 (37.5)	54 (67.5)	73 (91.2)
Neutral	12 (15.0)	7 (8.8)	6 (7.5)
Agree	38 (47.5)	19 (23.8)	1 (1.2)
Total	80 (100.0)	80 (100.0)	80 (100.0)
2. I think it is not necessary to prepare clothing, food, and medicine before flood.			
Do not agree	25 (31.2)	50 (62.5)	70 (87.5)
Neutral	12 (15.0)	10 (12.5)	5 (6.2)
Agree	43 (53.8)	20 (25.0)	5 (6.2)
Total	80 (100.0)	80 (100.0)	80 (100.0)
3. I am not afraid of flood disaster.			
Do not agree	26 (32.5)	51 (63.8)	70 (87.5)
Neutral	8 (10.0)	1 (1.2)	9 (11.2)
Agree	46 (57.5)	28 (35.0)	1 (1.2)
Total	80 (100.0)	80 (100.0)	80 (100.0)

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4. I think public information regarding to flood provided for the community is important.

Do not agree	0 (0.0)	0 (0.0)	0 (0.0)
Neutral	6 (7.5)	2 (2.5)	9 (11.2)
Agree	74 (92.5)	78 (97.5)	71 (88.8)
Total	80 (100.0)	80 (100.0)	80 (100.0)

5. I think stay clam is an important action to do during flood.

Do not agree	0 (0.0)	0 (0.0)	0 (0.0)
Neutral	9 (11.2)	2 (2.5)	1 (1.2)
Agree	71 (88.8)	78 (97.5)	79 (98.8)
Total	80 (100.0)	80 (100.0)	80 (100.0)

6. I think it is important to have knowledge of flood preparedness.

Do not agree	0 (0.0)	1 (1.2)	1 (1.2)
Neutral	24 (30.0)	1 (1.2)	1 (1.2)
Agree	56 (70.0)	78 (97.5)	78 (97.5)
Total	80 (100.0)	80 (100.0)	80 (100.0)

7. I care about flood and its consequences.

Do not agree	2 (2.5)	3 (3.8)	1 (1.2)
Neutral	9 (11.2)	3 (3.8)	3 (3.38)
Agree	69 (86.2)	74 (92.5)	76 (95.0)
Total	80 (100.0)	80 (100.0)	80 (100.0)

8. I think it is not necessary to evacuate during flood.

Do not agree	47 (58.8)	50 (62.5)	49 (61.2)
Neutral	11 (13.8)	11 (13.8)	14 (17.5)
Agree	22 (27.5)	19 (23.8)	17 (21.2)
Total	80 (100.0)	80 (100.0)	80 (100.0)

9. If something happens to me or my family during flood, it is a fate.

Do not agree	14 (17.7)	15 (18.8)	65 (81.2)
Neutral	13 (16.2)	13 (16.2)	14 (17.5)
Agree	53 (66.2)	52 (65.0)	1 (1.2)
Total	80 (100.0)	80 (100.0)	80 (100.0)

10. I think it is safe to swim in flood water.

Do not agree	62 (77.5)	71 (88.8)	76 (95.0)
Neutral	4 (5.0)	4 (5.0)	4 (5.0)
Agree	14 (17.5)	5 (6.2)	0 (0.0)
Total	80 (100.0)	80 (100.0)	80 (100.0)

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11. I think I am capable of preparing basic needs for myself before flood.

Do not agree	5 (6.2)	3 (3.8)	1 (1.2)
Neutral	1 (1.2)	1 (1.2)	4 (5.0)
Agree	74 (92.5)	76 (95.0)	75 (93.8)
Total	80 (100.0)	80 (100.0)	80 (100.0)

12. I can survive during flood even though the flood persists in my area more than two months.

Do not agree	12 (15.0)	12 (15.0)	33 (41.2)
Neutral	2 (2.5)	2 (2.5)	5 (6.2)
Agree	66 (82.5)	66 (82.5)	42 (52.5)
Total	80 (100.0)	80 (100.0)	80 (100.0)

13. I may have an accident during flood such as falling or drowning.

Do not agree	0 (0.0)	0 (0.0)	0 (0.0)
Neutral	5 (6.2)	1 (1.2)	1 (1.2)
Agree	75 (93.8)	79 (98.8)	79 (98.8)
Total	80 (100.0)	80 (100.0)	80 (100.0)

14. I do not think I will have stress after severe flooding.

Do not agree	23 (28.8)	23 (28.8)	8 (10.0)
Neutral	26 (32.5)	26 (32.5)	34 (42.5)
Agree	31 (38.8)	31 (38.8)	38 (47.5)
Total	80 (100.0)	80 (100.0)	80 (100.0)

15. I do not think anyone or any organizations can help me during and after flood.

Do not agree	43 (53.8)	76 (95.0)	48 (60.0)
Neutral	12 (15.0)	1 (1.2)	28 (35.0)
Agree	25 (31.2)	3 (3.8)	4 (5.0)
Total	80 (100.0)	80 (100.0)	80 (100.0)

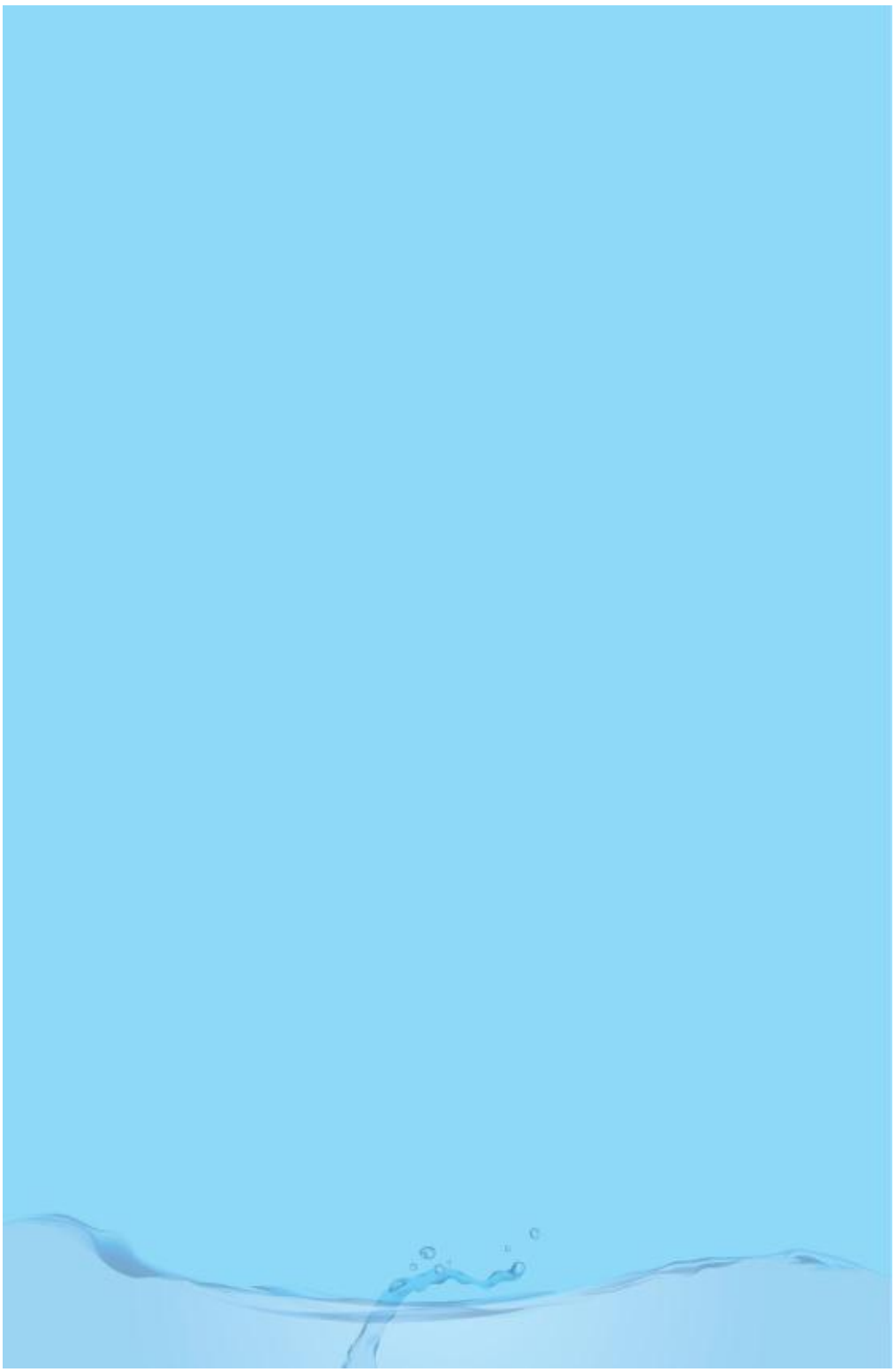
Part III: The Number and Percentage of Practice/Intention to Practice on Flood Preparedness Practice of the Elderly in the Intervention Group at Baseline, 3rd Month and 6th Month (n=80)

Statement	Intention to Pratice Baseline (%)	Intention to Pratice 3rd Month (%)	Intention to Pratice 6th Month (%)
21. When I hear the news about flood coming to my community, I will prepare medicine before it comes.	49 (61.2)	60 (75.0)	77 (96.2)
22. When I hear the news about flood coming to my community, I will prepare clothing before it comes.	55 (68.8)	71 (88.8)	78 (97.5)
23. When I hear the news about flood coming to my community, I will prepare dry, canned food.	54 (67.5)	78 (97.5)	80 (100.0)
24. Before flood comes to my community, I have to prepare copies of important documents such as identification care or medical record.	59 (73.8)	79 (98.8)	80 (100.0)

25. Before flood comes to my community, I have to prepare first aid kit.	36 (45.0)	48 (60.0)	79 (55.6)
26. Before flood comes to my community, I have to prepare for loss power such as candles, flashlights, and batteries.	62 (77.5)	79 (98.8)	78 (97.5)
27. I have to listen to the TV/radio for more information to stay alert about the flood situation.	57 (71.2)	75 (93.8)	52 (65.0)
28. I have to corporate with the emergency service if they tell me to evacuate during flood.	40 (50.0)	44 (55.0)	80 (100.0)
29. During flood, I have to turn off electricity in order to prevent electrocution.	57 (71.2)	79 (98.8)	75 (93.8)
30. I have to wash my hands before eating or drinking because my hands may be contaminated from flood water.	58 (72.5)	79 (98.9)	62 (77.5)
31. To avoid infection, I will clean minor puncture wounds, or cuts with soap and clean water.	44 (55.0)	58 (72.5)	80 (100.0)
32. If I have to walk through flood, I have to be in extreme	66 (82.5)	77 (96.2)	65 (81.2)

caution. I may have to walk with stick.			
33. I will never drink flood water.	56 (70.0)	52 (65.0)	49 (61.2)
34. I will stay out of flood area as much as possible.	40 (50.0)	36 (45.0)	60 (75.0)
35. I will not wash kitchen utensils with flood water.	54 (67.5)	53 (66.2)	60 (75.0)
36. I will wear rubber boots when I walk through flood water.	48 (60.0)	71 (88.8)	79 (98.8)
37. I will seek immediate medical attention if I become sick or ill; or I will let my family know about my situation immediately.	66 (82.5)	79 (98.8)	77 (96.2)
38. I will be aware of personal hygiene such as wash hands before eating and drinking even though flood is gone	60 (75.0)	80 (100.0)	80 (100.0)
39. I will check electricity lines, plugs, appliances within my home to make sure it is safe.	65 (81.2)	80 (100.0)	77 (96.2)
40. Even through flood is gone; I still will check flood information from local news and government to update the situations.	64 (80.0)	80 (100.0)	80 (100.0)

Appendix G: Flood Preparedness Manual Booklet



คู่มือรับน้ำท่วม

หนังสือ : **คู่มือรับน้ำท่วม**
บทเรียนจาก อำเภอบ้านหมอ จังหวัดสระบุรี
: รัตนา สำโรงทอง
ประจวบ แสงดาว
ถาวร ขลากระโทก
สุนันทา วงศ์ชาลี
เสาวลักษณ์ ดุลยพีรดิส
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จำนวนหน้า : 32 หน้า
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ผู้วาดภาพประกอบ : "คนปากศิลป์" นายวิเชียร ดิษฐี
: "ศิษย์ศิลปากร" น.ส. คัตทา สำโรงทอง
พิมพ์ที่ : บริษัท ศรีบุญ อุตสาหกรรมการพิมพ์ (1988) จำกัด
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คำนำ

ปลายปี 2554 ได้เกิดเหตุการณ์น้ำท่วมครั้งใหญ่ในหลายจังหวัดของประเทศไทย อำเภอบ้านหมอ จังหวัดสระบุรี เป็นอำเภอหนึ่งที่ได้รับผลกระทบอย่างรุนแรงจากน้ำท่วม หลายพื้นที่มีระดับน้ำสูงกว่า 2 เมตร เช่น ตำบลตลาดน้อย ตำบลหรเทพ และตำบลโคกใหญ่ สถานการณ์น้ำท่วมครั้งนั้นส่งผลกระทบกับคนทุกกลุ่มทุกวัย โดยเฉพาะในกลุ่มผู้สูงอายุ เนื่องจากผู้สูงอายุเป็นกลุ่มที่มีความเสี่ยงต่อการเจ็บป่วยหรือเกิดปัญหาสุขภาพมากกว่าวัยอื่นๆ เมื่อเกิดน้ำท่วมครั้งใหญ่เป็นระยะเวลายาวนาน บ้านเรือน ไร่นา ถูกน้ำท่วมเสียหาย ส่งผลต่อการดำเนินชีวิต วิถีชีวิต ตลอดจนการดูแลสุขภาพและคุณภาพชีวิตของผู้สูงอายุ

วิทยาลัยวิทยาศาสตร์สาธารณสุข จุฬาลงกรณ์มหาวิทยาลัย ร่วมกับโรงพยาบาลบ้านหมอ โรงพยาบาลส่งเสริมสุขภาพ (ตำบลหรเทพ ตำบลตลาดน้อย และตำบลโคกใหญ่) อาสาสมัครสาธารณสุข รวมทั้งองค์การบริหารส่วนท้องถิ่น และชมรมผู้สูงอายุ ได้จัดทำคู่มือประชาชน **"คู่มือรับน้ำท่วม"** เพื่อการเตรียมพร้อม รับมือ และดูแลผู้สูงอายุในช่วงก่อนน้ำท่วม ขณะเกิดน้ำท่วม และหลังน้ำท่วม โดยได้รับงบประมาณการจัดพิมพ์ จากโครงการส่งเสริมการทำงานวิจัยเชิงลึกในสาขาวิชาที่มีศักยภาพสูงศูนย์นวัตกรรมสหศาสตร์ โครงการในแผนพัฒนาวิชาการ จุฬาลงกรณ์มหาวิทยาลัย 2551-2555 กลุ่มวิจัย (CU-Clusters) ภายใต้โครงการพัฒนามหาวิทยาลัยวิจัยแห่งชาติคลัสเตอร์ สังคมผู้สูงวัย: บ้านหมอโมเดล: ภาคีความร่วมมือชุมชนในการรับมือกับภัยธรรมชาติ (น้ำท่วม) เพื่อคุณภาพชีวิตที่ดีของผู้สูงอายุ อำเภอบ้านหมอ จังหวัดสระบุรี คณะผู้จัดทำหวังว่าคู่มือประชาชนฉบับนี้จะเป็นประโยชน์ในการรับมือหากเกิดภัยน้ำท่วมในอนาคต

คณะผู้จัดทำ
ธันวาคม 2556

สารบัญ

คู่มือรับน้ำท่วม

1. ก่อนน้ำท่วม

เตรียมตัวให้พร้อมก่อนน้ำท่วม

1. **ตรวจสอบข้อมูลเรื่องน้ำท่วมที่เคยเกิด** ในละแวกบ้าน และหมู่บ้านใกล้เคียง เพื่อคาดการณ์ และเตรียมตัวหากเกิดน้ำท่วม
2. **ติดตามข่าว** โทรทัศน์ วิทยุ หอกระจายข่าวหมู่บ้าน อ่านหนังสือ วางแผนตรวจสอบสถานที่ และเส้นทางสำหรับการอพยพ
3. **เตรียมสิ่งของจำเป็น** ทั้งหมดเก็บในกล่อง หรือภาชนะที่กันน้ำและเคลื่อนย้ายได้สะดวก

- เอกสารสำคัญ เช่น บัตรประชาชน ทะเบียนบ้าน เอกสารประกันภัยกรมธรรม์ บัตรประจำตัวผู้ป่วยโดยเฉพาะผู้สูงอายุ เงินสด สมุดบัญชีธนาคาร
- ฝากของมีค่าไว้ที่ตู้นิรภัยธนาคาร หรือในที่ปลอดภัย
- ยารักษาโรค เช่น ยาสามัญประจำบ้าน ยาธาตุน้ำแดง ยาเม็ดแก้ท้องอืด ท้องเฟ้อ ในรายที่มีผู้สูงอายุในบ้าน ควรดูแลเรื่องยาผู้สูงอายุ

- อุปกรณ์สื่อสาร เช่น โทรศัพท์มือถือ ที่ชาร์ต แบตเตอรี่
- อาหาร เช่น ของแห้ง อาหารกระป๋องอาหารสำเร็จรูป ข้าวสาร น้ำดื่ม เสื้อผ้า รองเท้าบูท รองเท้ายาง หรือรองเท้าที่พร้อมลุยในทุกสถานการณ์ อุปกรณ์ช่วยเดินของผู้สูงอายุ (ไม้เท้าเหล็ก 4 ขา ช่วยเดิน)
- ผลิตภัณฑ์ทำความสะอาด ของใช้ เช่น สบู่ ยาสระผม ยาสีฟัน แปรงสีฟัน ผงซักฟอก เป็นต้น

- อุปกรณ์ให้แสงสว่าง เก็บใส่กล่องห่างจากพื้นที่เปียกชื้น เช่น ไฟฉาย ถ่านไฟฉาย ไม้ขีด เทียน ไฟแช็ก
- เครื่องมือช่าง เช่น ตะปู ค้อน ถุงมือ ถุงทราย กระสอบทราย ถุงดำใส่สิ่งปฏิกูล กาวซิลิโคน ไม้แผ่น แผ่นพลาสติก เชือก
- จดหมายเลขโทรศัพท์ของหน่วยงาน กรณีฉุกเฉิน เช่น ทางหลวงชนบท (โทร 1146) กรมทางหลวง (โทร 1586) บขส. (โทร 1490) บริการการแพทย์ฉุกเฉิน (โทร 1669) สถานีตำรวจ โรงพยาบาล โรงพยาบาลส่งเสริมสุขภาพ อาสาสมัครป้องกันภัยฝ่ายพลเรือน หน่วยกู้ชีพ แจ้งจับสัตว์ เป็นต้น
- ให้คำแนะนำการปฏิบัติอย่างถูกต้องแก่บุตรหลาน ผู้สูงอายุ เช่น ไม่สัมผัสเครื่องใช้ไฟฟ้า แจ้งสถานที่นัดพบเมื่อเกิดพลัดหลง

สิ่งแวดล้อมในและนอกบ้าน

- เคลื่อนย้ายปลั๊กไฟ สวิทซ์ไฟ อยู่บนที่สูง ซ่อมแซมรอยรั่ว
- ตรวจดูถังน้ำใต้ดิน ตรวจ สุขา ส้วม บ่อเกรอะ
- ตัดกิ่งไม้ ต้นไม้ หรือทำการค้ำยันลำต้นไว้
- สร้างเขื่อนกั้นน้ำชั่วคราว

2. ระหว่างน้ำท่วม

- ฟังข่าวสาร จากวิทยุ อย่างต่อเนื่อง
- ปิดอุปกรณ์ไฟฟ้าและสายไฟ ปิดระบบประปา ปิดถังแก๊สให้สนิท
- ห้ามเล่น หรือ จับปลา ในเส้นทางน้ำไหล
- ห้ามเข้าใกล้อุปกรณ์ไฟฟ้าและสายไฟ
- เคลื่อนย้ายทรัพย์สินมีค่าเก็บที่สูง

- ห้ามเดิน หรือ อยู่ใกล้เส้นทางน้ำไหล หากต้องเดินให้ใช้ไม้ในการค้ำยัน หรือวัดระดับความสูงของน้ำ หรือ เดินอย่างระมัดระวัง

- ระวังสัตว์อันตราย เช่น งู ตะขาบ จระเข้ แมงป่อง

- หากมีบาดแผล ควรทำความสะอาดบาดแผลด้วยน้ำสะอาด หรือน้ำยาฆ่าเชื้อ เช่น แอลกอฮอล์ ทิงเจอร์ น้ำเกลือล้างแผล เบต้าดีน หากแผลติดเชื้อหรืออักเสบ ควรไปรับการรักษาที่สถานพยาบาล

- ไม่ดื่ม หรือ ใช้น้ำที่เกิดจากน้ำท่วม เช่น ล้างมือเท้า ล้างภาชนะ

3. หลังน้ำท่วม

- ปรับคลื่นวิทยุ ฟังสถานการณ์ข่าวสาร
- อย่าใช้อุปกรณ์ไฟฟ้าใดๆ ที่มีความเปียกชื้น
- เตรียมสำรวจบ้านทั้งในและนอกบริเวณบ้าน โดยเตรียมอุปกรณ์ รองเท้ายาง ไฟฉาย ถุงมือ ก่อนออกสำรวจ

- เปิดประตู หน้าต่างเพื่อไล่ความชื้น ตรวจสภาพประตู หน้าต่าง โครงสร้างบ้าน

- ตรวจระบบไฟฟ้า และอุปกรณ์ไฟฟ้าต่างๆ

- ตรวจสอบความเสียหายของโครงสร้างบ้าน ตัวบ้าน ระเบียง หลังคา ให้แน่ใจว่าปลอดภัย หากเสียหาย ให้รีบซ่อมแซม
- เก็บ กวาด กำจัดขยะทั้งในและนอกบ้าน เช่น ซากต้นไม้ สิ่งของที่ลอยมากับน้ำ

- ตรวจระบบน้ำ ถังเก็บน้ำดื่ม ระบบประปา ระบบสุขภัณฑ์

- ขัด ถู ลงน้ำยาฆ่าเชื้อ ล้างอุปกรณ์เครื่องใช้ต่างๆ ซ่อมแซมบ้าน และบริเวณโดยรอบ

- เคลื่อนย้ายเฟอร์นิเจอร์ สิ่งของ
- ตรวจสอบวันหมดอายุ หรือวันที่ควรบริโภค ของยา รวมทั้งอาหารกระป๋อง
- เครื่องใช้ เสื้อผ้า ผ้าปูที่นอน ผ้าม่าน ควรซักใหม่
- ขอความช่วยเหลือหน่วยงานที่เกี่ยวข้อง เช่น เรื่องไฟฟ้า น้ำประปา ต้นไม้ล้มขวางทาง เป็นต้น
- คำนวณค่าใช้จ่าย การซ่อมแซม ติดต่อประกันภัย ถ้ามี
- พักผ่อนให้เพียงพอ กินอาหารที่เป็นประโยชน์ จัดลำดับความสำคัญสิ่งที่จะทำก่อน-หลัง

- ระวังเรื่องสุขอนามัย และโรคภัยที่มากับน้ำท่วม เช่น น้ำกัดเท้า ตาแดง ท้องร่วง
- จัดการสภาพกาย-จิตใจคนในครอบครัว พูดคุย ปรึกษากัน
- พบแพทย์ หากมีอาการไม่สบาย สำหรับผู้สูงอายุ ควรพบแพทย์ตามนัดอย่างต่อเนื่อง
- พบจิตแพทย์ หากเครียด ซึมเศร้า นอนไม่หลับ ดูแลผู้สูงอายุอย่างใกล้ชิด

ผู้ให้ภาพประกอบ

"คนปากศิลป์" แห่งบ้านหมอ **วิเชียร ดิษฐี** คนสู้ชีวิตที่แม้จะเป็นอัมพาต ขยับร่างกายไม่ได้เลย...แต่ก็ยังดำรงชีวิต และเลี้ยงดูครอบครัวอย่างไม่ท้อถอย

10 กว่าปีที่แล้ว **วิเชียร ดิษฐี** เคยทำงานเป็นตัวประกอบบู๊ หรือ เรียกง่ายๆ ว่าสตั๊นแมน วิเชียร เป็นคนร่าเริง แข็งแรงมาก และอนาคต ความเจริญรุ่งเรืองในการงานดีกว่าทุกๆ คนในกลุ่ม เพราะเป็นคนเก่งและมีความสามารถ หากแต่น่าเสียดาย ระหว่างที่วิเชียร กำลังฝึกซ้อมก่อนเข้าฉากแทนนักแสดงตัวจริง ได้เกิดอุบัติเหตุจากการตีลังกา (ซึ่งเคยทำได้อยู่ปกติเป็นประจำ) ศีรษะกระแทกพื้นอย่างแรง ผลจากอุบัติเหตุครั้งนั้นทำให้วิเชียร คอหักทันที ทำให้เป็นอัมพาต ขยับร่างกายไม่ได้อีกเลย

แม้ว่าร่างกายจะไม่สามารถขยับเขยื้อนได้เลย แต่วิเชียรยังคงมีกำลังใจที่เข้มแข็ง และยังสู้ชีวิต โดยใช้ **"ปาก"** อวัยวะเดียวในร่างกายที่ยังคงขยับได้ในการประกอบอาชีพสุจริต โดยการวาดรูปเพื่อหารายได้ เลี้ยงครอบครัว แม้ว่าจะไม่เคยได้เล่าเรียนเรื่องการวาดรูป หรืองานศิลป์อื่นๆ เลย แต่ด้วย

ความมุ่งมั่น ฝึกฝน วิเชียรสามารถวาดภาพได้อย่างสวยงาม โดยเฉพาะภาพลายเส้นไทย ขอยกย่องคนดีสู้ชีวิต ที่ไม่ยอมแพ้

โรคที่มากับน้ำท่วม

โรคน้ำกัดเท้าและผื่นคัน

เกิดขึ้นเพราะผิวหนังเท้า โดยเฉพาะง่ามเท้าเกิดเปียกชื้นและสกปรก เท้าที่แช่น้ำหรือเปียกชื้นอยู่ตลอดเวลาจะทำให้ผิวหนังที่เท้าอ่อน ส่วนผิวของหนังจะเปื่อยและหลุดออก เศษผิวหนังที่เปื่อยจะทำให้เชื้อโรคที่ปลิวมาในอากาศเกาะติดได้ง่าย และผิวหนังที่เปื่อยก็เป็นอาหารของเชื้อราได้ดี เชื้อราจึงอาศัยอยู่ทำให้เกิดแผลเล็กๆ ตามซอกนิ้วเท้า

โรคน้ำกัดเท้า มีอาการคันและอักเสบตามซอกนิ้วเท้า และถ้ามีเชื้อแบคที่เรียเข้าแทรกซ้อน จะทำให้อักเสบเป็นหนองและเจ็บปวดจนเดินลำบาก

ไข้หวัด

เป็นการติดเชื้อของจมูก และคอ เกิดจากเชื้อไวรัส เมื่อเชื้อเข้าสู่จมูกและคอ จะทำให้เยื่อจมูกบวม แดง มีเมือกที่จมูก แม้ว่าหวัดจะเป็นโรคที่หายเองภายใน 1 สัปดาห์ แต่ก็เป็นโรคที่คนป่วยไปพบแพทย์มากที่สุด

โรคเครียดวิตกกังวล

ความเครียดเป็นระบบการเตือนภัยของร่างกาย ให้เตรียมพร้อมที่กระทำสิ่งใดสิ่งหนึ่ง การมีความเครียดน้อยเกินไปและมากเกินไปไม่เป็นผลดีต่อสุขภาพ ส่วนใหญ่จะเข้าใจว่าความเครียดเป็นสิ่งไม่ดี ทำให้ปวดศีรษะ ปวดกล้ามเนื้อแน่นท้อง มือเท้าเย็น ในทางกลับกันความเครียดมีส่วนดี คือ สร้างความตื่นเต้น ความท้าทาย ความสนุกสนาน สรุปได้ว่าความเครียด คือ สิ่งที่มาทำให้เกิดการเปลี่ยนแปลงในชีวิตซึ่งมีทั้งผลดีและผลเสีย

โรคตาแดง

โรคที่พบบ่อย เป็นการอักเสบของเยื่อบุตาที่คลุมหนังตาบนและล่าง รวมเยื่อบุตาที่คลุมตาขาว อาจเป็นแบบเฉียบพลัน หรือเรื้อรัง อาจเกิดจากเชื้อแบคทีเรีย ไวรัส ภูมิแพ้ หรือสัมผัสสารที่เป็นพิษต่อตา สาเหตุส่วนใหญ่เกิดจากเชื้อแบคทีเรีย มักเป็นตาแดงเรื้อรัง มีการอักเสบของหนังตา ตาแห้ง การใช้คอนแทคเลนส์ หรือน้ำยาล้างตา

โรคอุจจาระร่วง

การถ่ายอุจจาระเหลว จำนวน 3 ครั้งต่อกันหรือมากกว่า หรือถ่ายเป็นน้ำมากกว่า 1 ครั้งใน 1 วัน หรือถ่ายเป็นมูกหรือปนเลือดอย่างน้อย 1 ครั้ง สาเหตุเกิดจากการติดเชื้อในลำไส้จากเชื้อแบคทีเรีย ไวรัส โปรโตซัว ปรสิต และหนอนพยาธิ

โรคฉี่หนู

มีหนูเป็นตัวแพร่เชื้อโรค เชื้อโรคที่ออกมากับปัสสาวะหนูจะปนเปื้อนอยู่ในน้ำท่วมขัง หรือบนพื้นดินที่ชื้นแฉะ หากเดินลุยน้ำ ย่ำโคลน อาจติดเชื้อโรคนี้ ควรป้องกันโดยการสวมรองเท้าบูทยาง หรือสวมรองเท้า ถุงพลาสติก

รายชื่อผู้ร่วมงาน
ทีมจังหวัดสระบุรี

1.	นายแพทย์ธนะวัฒน์ วงศ์ผัน	ผอ.รพ. บ้านหมอ
2.	นายไพศาล วิชิต	สาธารณสุขอำเภอบ้านหมอ
3.	นายวิเชียร เทพพงษ์	นายก อบต. โคกใหญ่-หรเทพ
4.	นายประจวบ แสงดาว	ผอ.รพ.สต.หรเทพ
5.	นส.ชลทิชา สิงห์เถื่อน	พยาบาลวิชาชีพ รพ.สต.หรเทพ
6.	นส.ปิยวรรณ แตงอ่อน	ผู้ช่วยเจ้าหน้าที่สาธารณสุข
7.	นส.สุธาทิพย์ ศิริพันธ์	เจ้าหน้าที่ธุรการ
8.	นายณรงค์ฤทธิ์ นนทสอน	นักวิชาการส่งเสริมสุขภาพ อบต. โคกใหญ่-หรเทพ
9.	นางสายทอง อาบวารี	ประธาน อสม. หมู่ 1 ต. หรเทพ
10.	นางสายทิพย์ บรรจงศิริ	ประธาน อสม. หมู่ 2 ต. หรเทพ
11.	นางมาลี กองนึก	ประธาน อสม. หมู่ 3 ต. หรเทพ
12.	นางรัตน์ดา เฉลิมวัฒน์	ประธาน อสม. หมู่ 4 ต. หรเทพ
13.	นางอรุณ น้อยจ้อย	ประธาน อสม. หมู่ 5 ต. หรเทพ
14.	นส.วัชรินทร์ คชเลิศ	ประธาน อสม. หมู่ 6 ต. หรเทพ
15.	นางละม่อม เทพพงษ์	ประธาน อสม. หมู่ 7 ต. หรเทพ
16.	นายจำเริญ ตรัสยอดสกุล	ประธาน อสม. หมู่ 8 ต. หรเทพ
17.	นางพิมพ์ลภัส คีรีรัตน์	ประธานชมรมผู้สูงอายุ ต. หรเทพ
18.	นายถาวร ขลากระโทก	ผอ.รพ.สต. ตลาดน้อย
19.	นายประชุม ขวัญเมือง	นายกเทศมนตรีเทศบาล ต. ตลาดน้อย
20.	นางสุณีย์ แสงดาว	พยาบาลวิชาชีพ รพ.สต. ตลาดน้อย

21. นางสมนึก ทองพูล	อสม. ตำบลตลาดน้อย
22. นายหาญ ศรประดิษฐ์	ประธานชมรมผู้สูงอายุ ต. ตลาดน้อย
23.นางประทุม อ่อนละมูล	ผู้ใหญ่บ้าน หมู่ 7 ต. ตลาดน้อย
24. นางบุญสืบ บุญคง	อสม. ตำบลตลาดน้อย
25. นางสำเนียง ศรีนุช	อสม. ตำบลตลาดน้อย
26. นายคณาธิป สนามพลี	ผอ.รพ.สต. โคกใหญ่
27. นส.นงลักษณ์ จำรัสพงษ์	พยาบาลวิชาชีพ รพ.สต. โคกใหญ่
28. นส.ศรีสมร ดำมณี	เจ้าหน้าที่ธุรการ

ทีมวิทยาลัยวิทยาศาสตร์สาธารณสุข จุฬาลงกรณ์มหาวิทยาลัย

รองศาสตราจารย์ ดร. รัตนา สำโรงทอง
นส. สุนันทา วงศ์ชาลี
นส. เสาวลักษณ์ ดุลยพีรดิส
นส. รภัทร เอกนิธิเศรษฐ์

ผู้วาดภาพประกอบ

"คนปากศิลป์" นายวิเชียร ดิษฐี
"ศิษย์ศิลปากร" นส. คัตทา สำโรงทอง

ภาพประกอบ

โรคที่มาจากน้ำท่วม หน้า 24, 27, 29 ที่มา :
http://a2.sphotos.ak.fbcdn.net
http://www.tnews.co.th/html

Appendix H: Ethical Approval

AF 02-12

The Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University
Institute Building 2, 4 Floor, Soi Chulalongkorn 62, Phyathai Rd., Bangkok 10330, Thailand,
Tel: 0-2218-8147 Fax: 0-2218-8147 E-mail: eccu@chula.ac.th

COA No. 082/2013

Certificate of Approval

Study Title No.034.1/56 : **THE EFFECT OF FLOOD PREPAREDNESS EDUCATION PROGRAM FOR THE ELDERLY LIVING IN THE COMMUNITY, SARABURI PROVINCE, THAILAND**

Principal Investigator : MS. SAOVALUX DULLYAPERADIS

Place of Proposed Study/Institution : College of Public Health Sciences, Chulalongkorn University

The Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University, Thailand, has approved constituted in accordance with the International Conference on Harmonization – Good Clinical Practice (ICH-GCP) and/or Code of Conduct in Animal Use of NRCT version 2000.

Signature: ..... Signature: .....

(Associate Professor Prida Tasanapradit, M.D.) (Assistant Professor Dr. Nuntaree Chaichanawongsaroj)

Chairman Secretary

Date of Approval : 3 May 2013 Approval Expire date : 2 May 2014

The approval documents including

1) Research proposal
2) Patient/Participant Information Sheet and Informed Consent Form
3) Researcher
4) Questionnaires

Protocol No. 034.1/56
Date of Approval - 3 MAY 2013
Approval Expire Date - 2 MAY 2014

The approved investigator must comply with the following conditions:

1. *The research/project activities must end on the approval expired date of the Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University (ECCU). In case the research/project is unable to complete within that date, the project extension can be applied one month prior to the ECCU approval expired date.*
2. *Strictly conduct the research/project activities as written in the proposal.*
3. *Using only the documents that bearing the ECCU's seal of approval with the subjects/volunteers (including subject information sheet, consent form, invitation letter for project/research participation (if available).*
4. *Report to the ECCU for any serious adverse events within 5 working days*
5. *Report to the ECCU for any change of the research/project activities prior to conduct the activities.*
6. *Final report (AF 03-12) and abstract is required for a one year (or less) research/project and report within 30 days after the completion of the research/project. For thesis, abstract is required and report within 30 days after the completion of the research/project.*
7. *Annual progress report is needed for a two- year (or more) research/project and submit the progress report before the expire date of certificate. After the completion of the research/project processes as No. 6.*

VITA

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Education Achievement:

The College of Public Health Sciences, Chulalongkorn University

-Doctor of Philosophy in Public Health

Hawaii Pacific University, Honolulu, HI

-Master of Arts in Organizational Change

-Master of Arts in Communication

-Graduate Certificate in Information Systems

-Graduate Certificate in Organizational Change and Development

-Graduate Certificate in National and Community

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Hawaii Pacific University, Honolulu, Hawaii

-Bachelor of Science in Business Administration, 2006

-Major: International Business

Tacoma Community College, Tacoma, WA

-Associate in Arts and Sciences, 2004

จุฬาลงกรณ์มหาวิทยาลัย
CHULALONGKORN UNIVERSITY