

การประเมินความรู้ เจตคติ และการปฏิบัติในการป้องกันโรคมาลาเรียของประชาชน

ในเขตอำเภอปากซอของ จังหวัดจำปาศักดิ์ ประเทศลาว



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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

สาขาวิชาพัฒนาระบบสาธารณสุข

วิทยาลัยวิทยาศาสตร์สาธารณสุข จุฬาลงกรณ์มหาวิทยาลัย

ปีการศึกษา 2551

ลิขสิทธิ์ของ จุฬาลงกรณ์มหาวิทยาลัย

ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICE REGARDING
MALARIA PREVENTION TOWARDS POPULATION IN PAKSONG DISTRICT,
CHAMPASACK PROVINCE, LAO PDR



Mr. Chansamone Thanabouasy

ศูนย์วิทยุทรัพยากร
A Thesis Submitted in Partial Fulfillment of the Requirements

for the Degree of Master of Public Health Program in Health Systems Development

จุฬาลงกรณ์มหาวิทยาลัย
College of Public Health Sciences

Chulalongkorn University

Academic Year 2008

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Thesis Title: ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICE REGARDING MALARIA PREVENTION TOWARDS POPULATION IN PAKSONG DISTRICT, CHAMPASACK PROVINCE, LAO PDR

By Mr. Chansamone Thanabouasy

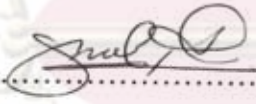
Field of Study Health Systems Development


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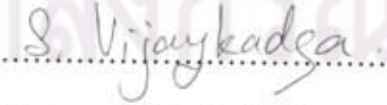
Accepted by the College of Public Health Sciences, Chulalongkorn University in Partial Fulfillment of the Requirements for the Master's Degree


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 โรคมาลาเรียของประชากรในอำเภอปากซอของ จังหวัดจำปาสัก ประเทศลาว.
 (ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICE
 REGARDING MALARIA PREVENTION TOWARDS POPULATION IN
 PAKSONG DISTRICT, CHAMPASACK PROVINCE, LAO PDR). อ.ที่ปรึกษา
 วิทยานิพนธ์หลัก: เนาวรัตน์ กาญจนาคาร, 108 หน้า

การวิจัยเชิงสำรวจเพื่อประเมินความรู้ เจตคติ และการปฏิบัติในการป้องกันโรคมาลาเรีย
 ของประชากรในอำเภอปากซอของ จังหวัดจำปาสัก ประเทศลาว ประชากรที่สำรวจมีจำนวนทั้งสิ้น
 410 คน มีช่วงอายุระหว่าง 15 ถึง 60 ปี ระยะเวลาที่ศึกษาอยู่ในช่วงวันที่ 1 ถึง 30 มกราคม พ. ศ.
 2552 การสำรวจครั้งนี้ทำโดยใช้แบบสอบถาม และวิเคราะห์ความสัมพันธ์ทางสถิติด้วยไค -
 สแควร์ จากการศึกษาพบว่าประชากรร้อยละ 59.1 มีความรู้เกี่ยวกับโรคมาลาเรียเป็นอย่างดี ร้อยละ
 33.2 มีเจตคติที่ดี แต่มีประชากรที่มีการปฏิบัติในการป้องกันโรคมาลาเรียอยู่ในระดับดีเพียงร้อยละ
 5.7 จากการศึกษาพบว่า ระดับการศึกษา อาชีพ รายได้ของครอบครัว ระยะเวลาที่อาศัยในพื้นที่
 สถานภาพการสมรส และการเคยรับรู้เรื่องโรคมาลาเรีย มีความสัมพันธ์อย่างมีนัยสำคัญกับความรู้
 เกี่ยวกับโรคมาลาเรียของประชากรในอำเภอปากซอ ($P < 0.001$, $P < 0.001$, $P < 0.001$, $P < 0.001$,
 $P = 0.007$ และ $P < 0.001$ ตามลำดับ) นอกจากนี้ยังพบความสัมพันธ์อย่างมีนัยสำคัญระหว่างเจต
 คติกับอาชีพ รายได้ของครอบครัวกับระดับการศึกษา และระยะเวลาที่อาศัยอยู่ในพื้นที่กับระดับ
 การศึกษา ($P < 0.001$, $P < 0.001$, $P = 0.002$ ตามลำดับ) สำหรับการปฏิบัติในการป้องกันโรค
 มาลาเรียพบมีความสัมพันธ์อย่างมีนัยสำคัญกับอาชีพ รายได้ของครอบครัว และเพศ ($P < 0.001$,
 $P < 0.001$, $P = 0.017$ ตามลำดับ) โดยสรุปการจัดโปรแกรมการให้ความรู้เกี่ยวกับสุขภาพโดยเน้น
 ให้ชุมชนเข้ามามีส่วนร่วมจะช่วยเพิ่มพูนความรู้ ความเข้าใจ เจตคติ และมีการปฏิบัติในการป้องกัน
 โรคมาลาเรียให้ดียิ่งขึ้น

สาขาวิชา...การพัฒนาาระบบสาธารณสุข.....ลายมือชื่อนิติศ.....

ปีการศึกษา:.....2551.....ลายมือ อ.ที่ปรึกษาวิทยานิพนธ์หลัก.....

5179106553: MAJOR HEALTH SYSTEMS DEVELOPMENT

KEYWORDS : KNOWLEDGE/ATTITUDE/PRACTICE/MALARIA

CHANSAMONE THANABOUASY : ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICE REGARDING MALARIA PREVENTION TOWARDS POPULATION IN PAKSONG DISTRICT, CHAMPASACK PROVINCE, LAO PDR. THESIS ADVISOR: NAOWARAT KANCHANNAKHAN, Ph.D., 108 pp.

A cross-sectional study was conducted on 1 - 30 January 2009 to assess the current status of knowledge, attitude, and practice (KAP) regarding malaria prevention towards population in Paksong district, Champasack province, Lao People's Democratic Republic (Lao PDR). Four hundred and one subjects age 16 - 60 were recruited in this study and a structure questionnaire was used to gather the data. Chi-square was used for analyze association between independent and dependent variables. The result shows that 59.1% of respondents had good knowledge, 33.2% had good attitude while only 5.7% had good practice regarding malaria prevention. The study found that education, occupation, monthly family income, length of stay, marital status and ever hearing of malaria were significantly associated with knowledge on malaria prevention ($p < 0.001$, $p < 0.001$, $p < 0.001$, $p < 0.001$, $p = 0.007$ and $p < 0.001$, respectively), highly significant association were also found between attitude and occupation, monthly family income, length of stay and education ($p < 0.001$, $p < 0.001$, $p = 0.002$, $p = 0.020$, respectively). Moreover, there are strong association between occupation, monthly family income and gender with practice on malaria prevention ($p < 0.001$, $p < 0.001$, $p = 0.017$, respectively). In conclusion health education program with community participation should be emphasized in order to improve the knowledge, attitude, and practice regarding malaria prevention.

Field of Study: Health Systems Development

Academic Year: 2008

Student's Signature

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Naowarat Kanchanarak

จุฬาลงกรณ์มหาวิทยาลัย

AKNOWLEDGEMENTS

I am deeply indebted and very grateful to Dr. Naowarat Kanchanakhan, my advisor and Tepanata Pumpaibool, my co-advisor for their guidance, invaluable supports and experiences that help me throughout this study.

Most importantly, I would like to thank the head of the Public Health Department of Champasack province, for sending me to study in Chulalongkorn University, Thailand and help me for data collection throughout the study. I would like to express my sincere gratitude and appreciation to the Health Personnel of Public Health Department of Paksong district, which assisted me for data collection of this study.

I would like to thank the Dean and all my lecturers of the College of Public Health Sciences, Chulalongkorn University for their kindness guidance. I also wish to thank all staffs of MPH office for their friendliness and kindly support to all students.

I would like to express a special thanks to all the MPH friends for their experiences, cooperation, kindness and friendship during this course.

Last but not the least, I wish to express my sincere thanks and gratitude to my scholarship program that is Thailand International Development Cooperation Agency (TICA) for enabling me to attend the course.

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LIST OF ABBREVIATIONS

An	: Anopheles (mosquitoes)
CDC	: Center of Disease Control and Prevention
GFATM	: Global Fund to Fight AIDS, Tuberculosis and Malaria
ITNs	: Insecticide Treated Bed Nets
KAP	: Knowledge, Attitude and Practice
Lao, PDR	: Lao People's Democratic Republic
NGOs	: Non-Governmental Organizations
NMCP	: National Malaria Control Program
PSI	: Population Service International
RBM	: Roll Back Malaria Program
SD	: Standard Deviation
x^2	: Chi-square
VHW	: Village Health Works
WHO	: World Health Organization

CHAPTER I

INTRODUCTION

1.1 Background and Rationale

Malaria is still one of the most widely spread human diseases today and constitutes a major public health problem for a large part of the world's population. Approximately, 40% of the population, mostly those living in the world's poorest countries, is at risk of malaria. Every year, more than 500 million people become severely ill with malaria. Most cases and deaths are in sub-Saharan Africa. However, Asia, Latin America, the Middle East and parts of Europe are also affected. Travelers from malaria-free regions going to areas where there is malaria transmission are highly vulnerable – they have little or no immunity and are often exposed to delayed or wrong malaria diagnosis when returning to their home country (WHO, 2007).

Even though malaria can be a fatal disease it is largely preventable and curable disease if it is promptly diagnosed and adequately treated. Concerning prevention, unfortunately, there is no effective vaccine currently available for malaria. The most preventive measures according to the World Health Organization (WHO) are personal protection, malaria vector control and chemical control. The principal objective of vector control is reduction of malaria morbidity and mortality by reducing the level of transmission. Incapable to combat the vector, Anopheles mosquitoes, human beings are progressively more suffering from malaria, resulting in disease burden (WHO, 2007).

In Lao People's Democratic Republic (Lao PDR) malaria is a serious health problem today and it is one of the leading causes of morbidity in this country. It is estimated that nearly 80% of the population (4.1 million) is at risk. Approximately 35% (1.9 million) living in hilly and forest areas which are high risk of malaria because the three most abundant malaria vectors *Anopheles dirus*, *An. minimus* and *An. balabasensis* are mainly transmitting, especially, in the area located between 400 to 1000 metre attitude. Most of those affected people live in hard-to-reach locations and health facilities are poor or non-existent. The actual mortality of malaria remains elusive because most patients die at home, resulting from the low level of health services. This disease is a common cause of death in most Lao PDR hospitals, with proportional mortality rates typically between 15% and 30%. With an incidence of confirmed malaria at 3.49 per 1000 per year and malaria mortality at 0.24 per 100,000 per year. Malaria is present in most rural areas of the Lao PDR. Groups at greatest risk include ethnic minorities, forest and agricultural workers, miners, and children below the age of 5. However, the disease is not present in cities, and the risk is low in the plains along the Mekong River and at altitudes above 1000-1500 meters (WHO, 2009). From the report of Roll Back Malaria Project (RBM), Lao PDR has a malaria burden severely than in any other Asian country (Roll Back Malaria, 1999). To combat this disease, the National Malaria Control Program (NMCP) was implemented based on RBM strategies including: (i) vector control with the use of Insecticide Treated Bed Nets (ITNs); (ii) availability of subsidize insecticide tablets for mosquito net (re-) treatment and (iii) early diagnostic and prompt and effective treatment of malaria cases by involvement of Village Health Worker (VHW) and private service deliverers. Until the end of 2002 (Lao PDR country profile, 2005), grant aid from the

European Union, World Bank, Asia Development Bank and Japan have been supported the control efforts; since May 2003, the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) has been the principal donor. Together with these strategies the community participation also plays an important role for malaria eradication.

In order to achieve effective prevention and control, community cooperation and participation is very essential. Regarding this, knowledge, attitude and practices of the population in the community play a key role in malaria prevention and transmission control.

Problem Statement

Malaria is serious disease affecting people in rural areas, where there are thick forests, coffee fields, highland, and moist. This disease is causing socio-economic problem of Lao PDR, so that prevention of this disease is extremely needed. Unfortunately, the high risk areas are scattered and difficult to access. Moreover, the population in the malaria endemic areas are consist of several ethnics group which have low income, low level education, and different culture, thus, their practice for malaria were different. Sustainable environmental control methods which require active community participation are also not fully implemented. Lack of community awareness on malaria and improper seeking treatment behavior also complicate the malaria problem.

Nowadays the best of malaria control in the world is prevention from malaria infection by using mosquito net facilities especially Insecticide Treated Bed Nets (ITNs). However, they were used in a few malaria high risk areas in Lao PDR and in some communities are not believe in this ITNs strategy.

The new malaria control policy was adopted in many countries around Southeast Asia with the objectives of the providing safe insecticide (deltamathrine and permethrine) effective to the mosquitoes. However, the new ITNs policy could not be implemented through out the pilot areas due to the limitation of resources, thus, the implementation only conducted in some selected areas. Ineffective malaria prevention is due to lack of knowledge and skills in prescribing appropriate insecticide for malaria vector control.

1.2 Research Question

1. What are their knowledge, attitude and practices regarding malaria prevention?
2. What are the sources of information about malaria?
3. Are there associations between demographic characteristics, knowledge on malaria prevention, attitude toward malaria prevention, and practice regarding malaria prevention?

1.3 Objectives

(a) General Objective

To determine knowledge, attitude and practice of population towards malaria prevention in Paksong district, Champasack province, Lao PDR.

(b) Specific objectives

1. To assess and determine the level of knowledge, various attitude and extent of practice regarding malaria among population in Paksong district.
2. To describe the source of information about malaria.

3. To identify relationships between malaria prevention practice with demographic characteristics, source of information, level of knowledge and attitude.

1.4 Research Hypotheses

1. There is the relationship between demographic characteristic such as gender, age, marital status, income, family member, education, and type of occupation and malaria prevention practice of population in Paksong district and malaria prevention.
2. There is an association between knowledge and practice of malaria prevention among population in Paksong district.
3. There is an association between attitude and practice towards malaria prevention among population in Paksong district.

1.5 Operational Definitions

Knowledge of malaria: the ability of a person to have correct understanding about malaria in terms of causative agent, mode of transmission, signs, and symptoms, treatment and prevention.

Attitude toward malaria: beliefs on susceptibility, seriousness and threat of malaria.

Practice of malaria prevention: routine activities and action of individual or group for prevention of malaria include impregnated bed nets (IBNs) with insecticide, using insecticide spraying, sleep in bed net, and control of mosquito breeding.

1.6 Research Conceptual framework

The schematic below shows an explanation of the factors affecting practice of malaria prevention of the study population. Those factors are demographic characteristic such as age, gender, education level, occupation, marital status, income, duration of stay, and family member; knowledge of malaria such as cause, symptoms, transmission, treatment and prevention; attitude toward malaria such as susceptibility, seriousness and threat.

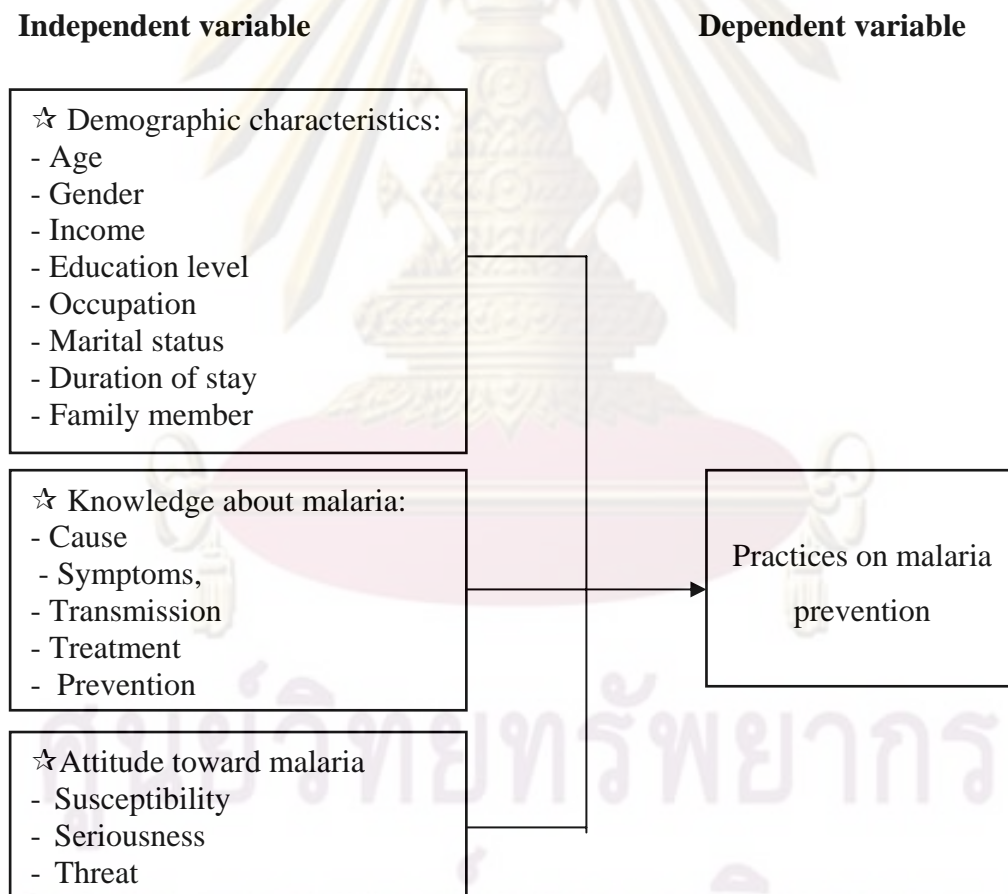


Figure 1: Conceptual framework of factors affecting malaria preventive behaviors

CHAPTER II

LITERATURE REVIEW

2.1 Malaria

2.1.1 Definition of malaria disease

According to definition of WHO, malaria is vector-borne disease which can be transmitted to people of all age. It is an infection caused by the malaria parasite entering the bloodstream, called Plasmodium Parasite, which is transmitted *via* the bites of infected female Anopheles mosquitoes or infected blood transferred by blood transfusion or a contaminated injection needle. If not treated promptly with effective medicines, malaria can be fatal.

2.1.2 *Plasmodium of malaria parasite*

There are 4 species of plasmodium that cause malaria in humans:

- *Plasmodium vivax*
- *Plasmodium falciparum*
- *Plasmodium malariae*
- *Plasmodium ovale*

Plasmodium parasites enter the bloodstream usually after a bite from the female anopheles mosquito. The parasites pass through the liver. In the case of vivax and ovale they may lie dormant in the liver for months or years accounting for late relapses. Relapses of this nature from the liver do not occur with falciparum or malariae but chronic infection in the blood may persist for a few years.

Once released from the liver the parasites invade the red blood cells. A cycle of 48 hours is required for falciparum, vivax and ovale and 72 hours for malariae for division and development. After this time they damage the red blood cell and are liberated. They then invade uninfected red cells and start dividing again thus repeating the cycle. At the time of rupture of the red cell they release substances called pyrogens which cause the symptoms of malaria (Alene, 1994-1990).

2.1.3 Malaria vector (Anopheles mosquito)

Malaria is transmitted from man to man by the female Anopheles mosquito, one of the most capable vectors of human disease. Various species have been found to be the vectors in different parts of the world. For example, *A. gambiae* is the chief vector in Africa and *A. freeborni* in North America. Nearly 45 species of Anopheles mosquito have been found in India and several species which are *A. culicifacies*, *A. fluviatilis*, *A. minimus*, *A. philippinensis*, *A. stephensi*, *A. sundaicus*, and *A. leucosphyrus* have been implicated in the transmission of malaria in this country. The areas of distribution are different for these mosquitoes: *A. fluviatilis*, *A. minimus* are found in the foot-hill regions, *A. stephensi*, *A. sundaicus* are found in the coastal regions, *A. culicifacies* and *A. philippinensis* are found in the plains. Furthermore, *A. stephensi* is the most adaptive species and found to be very potent vectors for human malaria (Kakkilaya, 2007).

(1) Characteristic and position of biting

The female Anopheles mosquito has special apparatus to penetrate the skin of its victim. At the end of the slender proboscis, there are two pairs of cutting stylets those slide against one another to slice through the skin. Once it penetrates through

the skin, the mosquito's proboscis begins probing for a tiny blood vessel. If it does not strike one on the first try, the mosquito will pull back slightly and try again at another angle through the same hole in the skin. Inside the proboscis are two hollow tubes, one that injects saliva into the microscopic wound and one that withdraws blood. The mosquito's saliva includes a combination of anti - haemostatic and anti - inflammatory enzymes that disrupt the clotting process and inhibit the pain reaction (Kakkilaya, 2007).



Figure 2: Anopheles adult mosquito resting 45° upside down of the surface

(2) Mosquito biting time

Anopheles mosquitoes enter the house between 5 p.m. to 9.30 p.m. and enter again in the early hours in the morning. They start biting by late evening and the peak of biting activity is at midnight and early hours in the morning. By keeping the windows and doors closed between 5 p.m. to 10 p.m. and again in early morning, one can prevent the entry of these mosquitoes into the house. Also protect themselves against mosquito bites in the evenings and early mornings by wearing garments cover the body as much as possible and using mosquito net at night (Kakkilaya, 2007).

(3) Preferred source for blood meals

One important behavioral factor is the degree to which an *Anopheles* species prefers to feed on humans (anthropophily) or animals such as cattle (zoophily). Anthropophilic *Anopheles* is more likely to transmit the malaria parasites from one person to another. Most *Anopheles* mosquitoes are not exclusively anthropophilic or zoophilic. However, the primary malaria vectors in Africa, *An. gambiae* and *An. funestus*, are strongly anthropophilic and, consequently, are two of the most efficient malaria vectors in the world (CDC, 2004).

(4) Life span

Once ingested by a mosquito, malaria parasites must undergo development within the mosquito before they are infectious to humans. The time required for development in the mosquito (the extrinsic incubation period) ranges from 10-21 days, depending on the parasite species and the temperature. If a mosquito does not survive longer than the extrinsic incubation period, then she will not be able to transmit any malaria parasites (CDC, 2004).

(5) Pattern resting

The adult mosquitoes hide themselves behind cupboards, clothes, curtains and other dark and cool corners during the day and come out to bite at night. It is important to minimize these hiding places. Therefore keep the cupboards and such other things closed; do not hang clothes at corners of the room, instead keep them inside the wardrobes or cupboards (CDC, 2004).

(6) Breeding site

Anopheles mosquitoes breed in natural water collections. Therefore, breeding increases dramatically in the rainy season when water collects in bottles, tins, tender coconut shells, buckets, tyres etc., that are thrown out in the open and these provide ample breeding ground. Also wells, ponds, water tanks, paddy fields etc., act as breeding grounds. Construction sites provide ample breeding places for the mosquito - water on the concrete slabs (used for curing), water collected in tanks, water collected in and around the construction site owing to blockage of water drains - all these help breeding. It is very important to destroy these water collections or to keep them properly covered to prevent breeding⁹. Females Anopheles mosquito laid their eggs in batches of 70 to 100 on the surface of water at night, usually it takes about a week for the eggs to develop into adults (CDC, 2004).



Top: *Anopheles* Egg

Anopheles Larva.

Anopheles Pupa

Figure 3: *Anopheles* mosquito life stages of development.

(7) Insecticide resistance

Insecticide-based control measures (e.g. indoor spraying with insecticides, ITNs) are the principal way to kill mosquitoes that bite indoors. However, after prolonged exposure to an insecticide over several generations, mosquitoes, like other insects, may develop resistance, a capacity to survive contact with an insecticide. Since mosquitoes can have many generations per year, high levels of resistance can arise very quickly. Resistance of mosquitoes to some insecticides has been documented with just within a few years after the insecticides were introduced. There are over 125 mosquito species with documented resistance to one or more insecticides. The development of resistance to insecticides used for indoor residual spraying was a major impediment during the Global Malaria Eradication Campaign. Judicious use of insecticides for mosquito control can limit the development and spread of resistance. However, use of insecticides in agriculture has often been implicated as contributing to resistance in mosquito populations. It is possible to detect developing resistance in mosquitoes and control programs are well advised to conduct surveillance for this potential problem (CDC, 2004).

2.1.4 Mode of transmission

The malaria parasite is transmitted from person to person by the bite of *Anopheles* mosquitoes, and only *Anopheles* mosquitoes. The malaria parasite inhabits the human red blood cells, where it multiplies asexually. After reaching maturity in 48-72 hours, the red blood cells burst and release large numbers of new parasites, most of which enter new red blood cells, thus, reinitiating the cycle. Others enter liver cells. Before the asexual cycle in red cells is established, the parasite must complete a 5-10 days period of multiplication in liver cells. The typical malaria symptoms, chills

and fever, are associated with this rupturing of infected red blood cells (Rutledge et al., 2008).

2.1.5 Symptoms

(1) Falciparum malaria (malignant tertian malaria)

The time of onset of the first symptom after the mosquito bite is 7 - 14 days but may be later if one has been on prophylaxis. Symptoms are variable depending on age, immunity, general health and other factors. Symptoms of falciparum malaria, the infected person feels generally unwell with fever, muscle pains and headache rather as if getting flu. Even when outside temperature is hot shivering suddenly starts and becomes a rigor (violent shaking and teeth chattering). The rigor lasts about an hour followed by general prostration, multiple symptoms including throbbing headache and vomiting and the temperature reaches a peak. A drenching sweat breaks out and the fever goes down over a few hours. The total duration of the paroxysm is 8 - 12 hours and after it the patient may feel well. The classical periodicity of fever of 48 hours is not usually seen with falciparum malaria and the fever may be daily or unremitting. Cerebral malaria which occurs with falciparum is one of the most severe forms of malaria and accounts for 80 percent of deaths. The term is usually restricted to patients with unrousable coma and falciparum infection (Arlene, 1994).

(2) Vivax, ovale and malariae

The incubation periods are different in the 3 types of malaria varying from 12 - 17 days in vivax to 18 - 40 days in malariae. Some strains of vivax may have long incubation periods 250 - 637 days. Symptoms of vivax, ovale and malariae, the characteristic tertian interval between fever spikes may be seen with vivax and ovale (48 hour interval) and the quartan interval with malariae (72 hours) this periodicity is

established after some days of irregular fever. Paroxysmal fevers as described for falciparum occur but there is a low mortality and cerebral malaria is rare. The spleen may become much enlarged with malariae infection. Patients with vivax infection may become severely anaemic (Arlene, 1994).

2.1.6 Prevention and control of malaria

The control of malaria involves control of 3 living beings which are (i) man, (ii) mosquitoes, and (iii) parasite. Man, the host is a moving target and can take the disease with him/her to far and wide. Mosquitoes are moving, highly adaptable and have shown resistance to insecticides. It is therefore important to target non-flying stage of mosquito eggs and larvae. The parasite is also highly adaptable, hides in humans and mosquitoes and has also developed resistance to drugs. Therefore, the simply way to achieve the effective malaria control should be focus on human host then mosquito and finally parasite will be tackled with development of effective and vaccines (Kakkilaya, 2007).

Man's Role in Malaria Control

Man is the most important link in the malaria control chain. He can be made to understand the problem and he can help in breaking the chain at multiple points. Therefore great emphasis should be laid on educating the people about malaria and its control, so that common people can effectively contribute in controlling this disease. This includes education of doctors about the need for early diagnosis and prompt treatment of malaria. There are five type of the roles for malaria control: (i) early diagnosis and treatment - treat early to reduce parasite load, hence spread; prevent deaths, (ii) treat completely to prevent spread and relapse, (iii) ensure compliance with complete treatment, (iv) personal protection- prevent malaria by using bed nets,

insecticide sprays etc., and by chemoprophylaxis and (v) seeking help in mosquito control (Kakkilaya, 2007).

Vectors control

Vector control aims to decrease contacts between humans and vectors of human disease. Control of mosquitoes may prevent malaria as well as several other mosquito-borne diseases. Vector control for the prevention of malaria includes: (i) insecticide-treated bed nets, (ii) indoor residual spraying and (iii) source reduction (larval control). (CDC, 2008)

Parasite control

Since there is no effective of vaccine available for protection against malaria despite decades of research, thus, an alternative method that effort a fairly reliable protection against malaria is needed.

Chemoprophylaxis is known as anti-malaria drugs to prevent the development of malaria. Choice of chemoprophylaxis varies depend on the species and drugs resistance prevalent in a country. It must be remembered that no chemoprophylaxis regime provides 100 percent protection. Therefore, it is essential to prevent mosquito bites as well as to comply with chemoprophylaxis (Kakkilaya, 2002). However, chemoprophylaxis is not recommended for places where there is a very low risk of acquiring highly multi-drug resistant malaria as the risk of adverse effects exceeds the risk of contracting the disease, but travelers are urged to maintain a high degree of awareness and seek immediate diagnosis and treatment of any febrile illness (Bradley, 2003).

2.2 Reviews of relevant research finding

The study on knowledge, attitudes, and practices of Japanese travelers towards malaria prevention during overseas travels was conducted. A total of 212 Japanese travelers who had visited malarious areas were enrolled, of which 63.2% had visited Asia and 28.3% visited sub-Saharan Africa. Significant shortcomings in KAP were noted with respect to lack of knowledge about symptoms of malaria, poor awareness of malaria risk at their destination, and non-adherence to adequate anti-mosquito measures. Chemoprophylaxis use was lower among Japanese travelers than travelers from other countries, even when confining to those traveling to sub-Saharan Africa (Namikawa et. al., 2008).

The survey of knowledge, attitude and beliefs about malaria in a tribal area of Bastar district (Madhya Pradesh), the study village of Kurandhi has a population of 3608, 83% of whom are tribal people, and 99% of the population is illiterate. A total of 356 inhabitants belonging to 98 randomly selected families were interviewed by means of a self-administered questionnaire to elicit information about the perceptions of the community on the mode of disease transmission, resting and breeding habits of mosquitoes, and treatment and mosquito control measures. 46% of the respondents were aware that malaria is caused by mosquito bite, the rest believed that it is caused by the wrath of God (20%), witchcraft (15%), strolling in a forested area (4%), eating stale food (2%), drinking bad water (1%), while about 10% of tribal people were ignorant about the mode of disease transmission. 50% of respondents were cognizant about the symptoms of malaria and the need to get their blood examined in case of fever. However, 50 percent revealed that in case of fever

they would prefer to obtain treatment from tribal healers (20%), practice witchcraft (15%), use wild herbs (8%), use chili (4%), or turmeric powder (3%). 58% of the respondents were aware that mosquitoes rested in human dwellings, 30% believed that they lived in cattle sheds and jungles, and the rest did not know. The majority of respondents did not know about the breeding place of mosquitoes. Sixty percent were aware that spraying insecticides in the village was intended to kill mosquitoes, 20% believed that it killed house flies, and the rest did not know. Thirty percent knew that mud plastering should not be done after insecticidal spray; however, about 80% of the population would mud plaster their houses within a week of spray. Seven percent used smoke to drive away the mosquitoes or used Kuranji oil as repellent to prevent mosquito bites. Mosquito bed nets or any other types of repellent were not used. There is a dire need to educate the families and community in malaria control (Sharma et. al., 1993).

The studies to evaluate community perspective on the use of impregnated linen for malaria control in Chobe community, Botswana was conducted, and 448 household heads (71%) of the Chobe household heads were interviewed. Most (93.5%) consider malaria as a major public health problem with 82% report a death from malaria during the last transmission season. The community was already paying for preventive intervention including repellent (64%), bed nets (17%). One in every five of the community members however believed that malaria was not preventable. Knowledge on the contribution of enabling environment towards malaria transmission including stagnant water was low but ranged from 21.7 - 51.2%. Consequently only 21% of the community was taking steps towards reduction of mosquito breeding sites. More to it, 36.6% of the populations do not

consider indoor DDT spraying as cost effective method of malaria control. During the optimal biting time of mosquito 80% of the Chobe population was reported to be outside in the open air. It follows therefore that the risk of a successful bite between communities staying in spread houses and those staying in outspread houses might not be significantly different. Only 8% of the Chobe community considers they responsible for malaria control as 58% hold the government responsible to check malaria transmission. A good number though, (58.5%) had at one time used bed nets for protection against malaria. Forty-four percent of the study population slept on the floor. Such sleeping arrangements do not provide optimal situation for use of bed net (Diseko et. al., 1997)

The survey of knowledge, attitude and practice relating to malaria in Mashonaland Central, Zimbabwe between March 18 and April 17 in 1993 was performed; interviews were conducted in 888 persons aged 8-80 years. The researchers could determine the incidence rate of self-perceived malaria as well as the inhabitants' knowledge of malaria symptoms and preventive measures and their preventive behavior and treatment seeking behavior. Ninety-four percent were familiar with malaria. Eighty-nine percent could name at least one symptom of malaria. Fifty-three percent provided at least four symptoms. The leading symptoms mentioned were general weakness (17%), shivering (16%), headache (16%), fever (14%), vomiting (11%), and joint-muscle pains (11%). Following the onset of the rainy season, the malaria incidence rate was 18.7% for children aged less than 5 and 16.8% for persons aged 5 and older. Persons living in the lowlands were more likely to have experienced malaria recently than those living in the highlands (28.8% vs. 9.5%). They were more likely to be outside their houses for at least 2 hours than

their highland counterparts (89% vs. 62%; relative risk (RR) = 1.43). Inhabitants living at both altitudes did not differ in their taking of malaria medicine. Most persons (73%) received their medicine from the local clinic. Twenty-two percent of all respondents did not know the cause of malaria. Among those who said that they knew the cause, 63.1% stated it to be mosquitoes. People over age 50 and those under age 16 knew the least about malaria. Eighteen percent of inhabitants who claimed they knew what causes malaria provided more than one answer. Forty-six percent of inhabitants who answered the question on prevention did not know how to prevent malaria. People in the lowlands were less likely to know effective measures to prevent malaria than those in the highlands (50% vs. 66%; $p < 0.01$), even though malaria is more common in the lowlands. They rarely mentioned residual house spraying as a preventive measure, even though its practice was almost universal. No one mentioned skin repellents. These findings pointed out opportunities for malaria education: during residual house spraying and in schools (Van et. al., 1995).

A group-randomized controlled trial of insecticide (permethrin)-treated nets (ITNs) was conducted in an area of high perennial malaria transmission in western Kenya to test the effect of ITNs on all-cause mortality in children 1 – 59 months of age. Overall, 1,722 deaths occurred in children 1–59 months followed for 35,932 child-years. Crude mortality rates 1,000 child-years were 51.9 versus 43.9 in control and ITNs villages in children 1–59 months old. The protective efficacy (PE) (95% confidence interval) adjusted for age, study year, study site, and season was 16% (6 – 25%). The children in control and ITNs villages were 133.3 versus 102.3, PE = 23% (11 – 34%) and 31.1 versus 28.7, PE = 7% (6 – 19%). The

numbers of lives saved/1,000 child-years were 8, 31, and 2 for the groups 1–59, 1–11, and 12 - 59 months old, respectively. Stratified analysis by time to insecticide re-treatment showed that the PE of ITNs re-treated per study protocol (every six months) was 20% (10 – 29%), overall and 26% (12 – 37%) and 14% (1 – 26%) in 1 – 11 and 12 – 59 month old children, respectively. ITNs prevent approximately one in four infant deaths in areas of intense perennial malaria transmission, but their efficacy is compromised if re-treatment is delayed beyond six months (Penelope et al., 2003).

In large experimental trials throughout Africa, insecticide-treated bed nets and curtains have reduced child mortality in malaria-endemic communities by 15% – 30%. They revisited the site of a small-scale insecticide-treated materials (ITM) intervention trial, 3 years after the project ended, to assess how local attitudes and practices had changed. Qualitative and quantitative methods, including 16 focus group discussions and a household survey ($n = 60$), were employed to assess use, maintenance, re-treatment and perceptions of ITM and the insecticide in former study communities. They found that, three (15%) of the households issued curtains had purchased one or more bed nets since the study ended. In households where bed nets had been issued, children 10 years of age and younger were a third as likely to sleep under a net as were adults (relative risk (RR) = 0.32; 95% confidence interval (95%CI = 0.19, 0.53). (Kachur et. al., 1999).

The study on malaria prevention by using insecticide-treated bed nets among children under 5 in Blantyre district, Malawi. Bed net ownership was low (20.5% of households) overall, and significantly lower in rural areas than urban areas (6.4 vs.

29.8%, $P=0.001$). Only 3.3% of rural children under 5 had slept under a net, compared with 24.0% of urban children ($P < 0.001$). When asked why they did not own a net, nearly all (94.9%) caretakers in households without nets stated that they had no money to buy them. The rural children under 5 in households without nets experienced a statistically significant higher prevalence of malaria parasitaemia (RR (risk ratio) 4.9, 95% CI (confidence interval) 2.3–10.5) than children in households with at least one bed net. This was also true for urban children under 5 (RR 2.1, 95% CI 1.0–4.2, $P=0.04$) (Holtz et. al., 2002).

The cooperative malaria control project between Indonesian and Japanese institutions was conducted from 2001 to 2004 at small malaria endemic foci on Lombok and Sumbawa Islands. The aim of this research was to evaluate the effects of the project according to the opinions of the villagers. A KAP survey of a simple random sample of 300 householders was conducted on each island. The conclusion of the study was that the project reduced malaria incidence significantly on Lombok. However, the effects were not as clear on Sumbawa. Poor socio-economic status and lack of school education were important related factors. Therefore, health education, or behavioral change communication, was an essential component of malaria control (Yoda et al., 2007).

The study on KAP in Laos PDR in 2004 was conducted. The findings were as follows: General knowledge regarding malaria should be improved throughout the target population. Only 11.7% of respondents could cite all three main symptoms of malaria and less than half knew that mosquito bites are the only transmission route. One in five (20.3%) believed that malaria can be transmitted through dirty water.

Consistent use of ITNs was identified by only 13.6% as the best method of malaria prevention. The biggest knowledge disparity between ITN users and non-users was in their identification of ITN use as the best method of malaria prevention, and their knowledge that nets require re-treatment. Outcome expectations also need improvement, as only 40.9% of respondents named that sleeping under mosquito net is one of the advantages of malaria prevention. Self-efficacy is also very low, with only 8.7% of respondents stating that they know how to treat a net with insecticide (PSI, 2004).

The survey on behaviors in self-prevention of malaria among mobile population in Chanthaburi and Trat provinces, Thailand was conducted. In-depth interviews were performed in 729 people, 153 households in 4 villages which are Ban Wang Thong, Ban Khao Thong, Ban Manow, and Ban Khow. These villages are located in Thai-Cambodia border. The movement rates were 23.1% for Ban Wang Thong, 12.2% for Bhan Khao Thang, 37.5% for Ban Manow, and 28.7% for Ban Khow. There were no health education programs, specialized malaria services, or malaria control interventions. The mobile population had a score of 40% for knowledge about malaria. 51% knew where to go for malaria treatment when they were infected (Butraporn et al., 1995).

The result of study in assessment of knowledge, attitude and practice regarding malaria prevention towards Karen ethnic group in Umpiem Mai Refugee camp, Phobphra district, Tak province, Thailand was conducted in-depth interviews were performed in 379 people. The overall knowledge of malaria showed that 61.2% of respondents had good level of knowledge and only 1.6% had poor knowledge

level. Consider to each knowledge of malaria, 64.9% had good knowledge on malaria vector, 77% had good knowledge on malaria mosquito and 78% had good knowledge on malaria prevention. On the other hand, there 38% of respondents had poor knowledge on malaria transmission and 24% on malaria vector (Phensaengngam, 2008).

The result of KAP study on malaria in project area of malaria center of Ovha, found that 100% of respondents had heard about malaria disease. About sign and symptoms most of them identified fever followed by headache and body ache. When asked about the test that needs to be done to detect malaria about 76.76% said, “blood test” and most of the rest said “don’t know”. About mode of transmission 71.89% said “mosquito bite”. About knowledge of treatment 39.41% said “Chloroquine” and 35.56% said “Medicine”. About place of treatment about 67.52% preferred institutional treatment.

About place of availability of malaria medicine 54.17% said “government health facility (Dutta, 2000)

The survey on community knowledge, attitude and practices (KAP) on malaria in Swaziland: A country earmarked for malaria elimination. A substantial number of research participants showed reasonable knowledge of malaria, including correct association between malaria and mosquito bites, its potential fatal consequences and correct treatment practices. Almost 90% of the respondents stated that they would seek treatment with 24 hours of onset of malaria symptoms, with health facilities as their first treatment action. Most people (78%) perceived clinics and vector control practice as central to treatment and prevention malaria disease. Indoor residual

spraying (IRS) coverage and bed net ownership were 87.2% and 38.8%, respectively (Hlongwana, et al., 2009).

The study of knowledge, awareness and practices towards malaria in communities of rural, semi-rural and bordering areas of east Delhi (India), the analysis of the data showed moderate to high awareness level among the various respondents is understandable as malaria being an oldest disease of mankind and various control programs run by government agencies, such as DDT spraying in 1970-76. The government hospitals were most commonly used treatment source of the respondents residing in semi urban. However, some visit private clinics. Self-treatment, especially with chloroquine was found prevalent among the residents of Sholana village. For malaria prevention showed usage of mosquito net during the March, mid-April, October and November months only (not in the hot humid month) and usage of insecticides were noticed in the factory employees and rural residents (Tyagi, et al., 2005).

The KAP survey and malaria control in Vietnam: finding and caution about community research. A total of 1080 individual from 360 households complete the survey. Found that, nearly 73% correctly identified that malaria is transmitted by mosquito bites. Most people correctly identified fever as the symptom of malaria infection. About malaria prevention and treatment are found most participants correctly identified over 84% claimed to sleep under a mosquito net regularly. Most of them would go to the public commune health center if they got malaria. The source of malaria education, including health staff (71%), television and radio (over 33% each) Women's Union (26%), teachers (9.5%), poster (28%), video (21%),

radio (18%), meeting with health staff (17%) and home visits (12%) (Nam, et al., 2005).



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

CHAPTER III

RESEARCH METHODOLOGY

3.1 Research design

A cross-sectional survey method will be used to identify knowledge, attitude and practice regarding malaria prevention among population in Paksong district, Champasack province, Lao PDR. The demographic characteristics of respondents are also examined in this study.

3.2 Study area

This study will be conducted among population in Paksong district, Champasack province, Lao PDR. This province is located in the southern region of the country and comprise of 10 districts, 924 villages with the total population of 600,880. Paksong district consist of 109 villages, 60,408 people of the total population and located at an altitude of about 1,200 meters from the sea level, surrounded by heavy tick forests and coffee fields. The population is related to agriculture and their main product is coffee. There are many ethnic groups with difference languages, culture, beliefs, and life styles, low income and literacy rate is low. This study will be performed in 10 villages in Paksong district.

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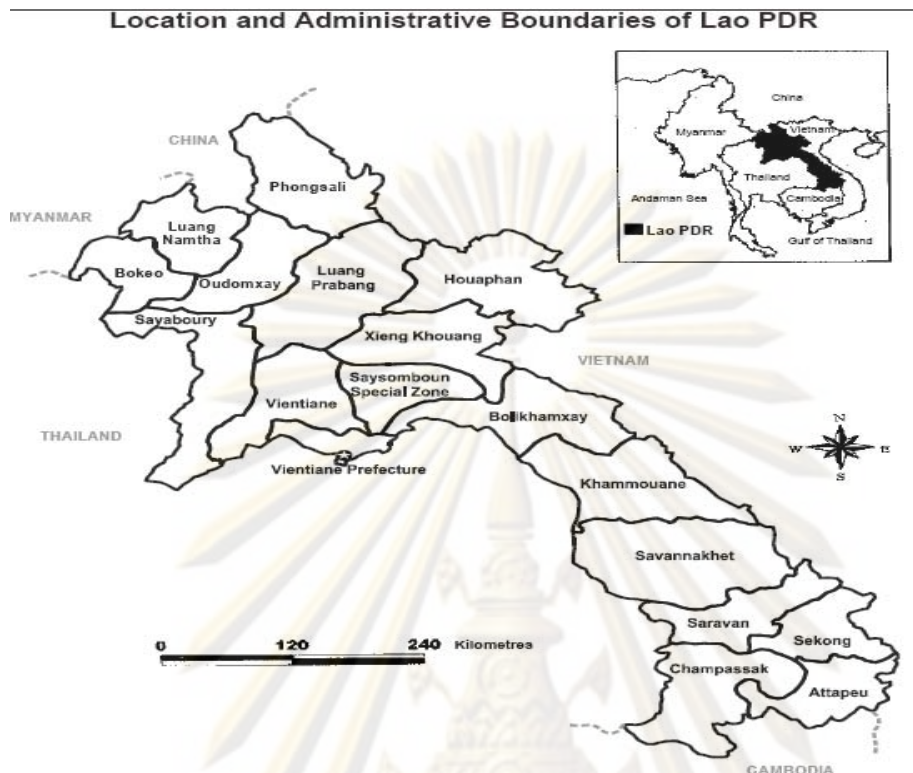


Figure 4: Location and Administration of Lao. PDR

Map of Champasack province



Figure 5: The map showed the study area, Paksong district, Champasack province, Lao PDR.

3.3 Study population

Though ambiguous in definition, this study regardless sampled villagers being in urban areas. Target population consists of population aged 15-60, both male and female whose are currently living in Paksong district more than one year.

3.4 Sample size

The sample size is calculated by using the following formula:

$$N = \frac{Z^2 PQ}{d^2}$$

N= desired sample size

Z= the reliability coefficient at the 95% CI=1.96

P= proportion of high knowledge = 50% = 0.5 (from the result of first report, knowledge, attitudes and practices relating to malaria in Lao PDR. results of a household survey in 5 provinces, Attapeu, Champasack, Salavan, Savannakhet, and Sekong, 2004)

D= absolute precision of study = 0.05 (acceptable error)

Q= (1-p) = 0.5

N= 384

With estimate 10% of participant will not participate. So, total subjects are **420**.

3.5 Sampling method

(1) First select 10 villages from 109 villages of Paksong district by simple random sampling method.

(2) Second select the number of household/subject:

- List total number of household in each village
- Calculate the total of 10 villages
- Divided 420 by total number of household of 10 villages (a)
- Multiply total number of household in each village with above number (a).

So, we have total number of subject in each village

- In each village select subject by systematic random sampling method
- List total household in each village

(3) Third select the household/subject selection:

- Divide total household in each village by total subject in each village. So we have sample interval
- Select random number from 1 to sample interval
- Select next subject by random number with sample interval and so on

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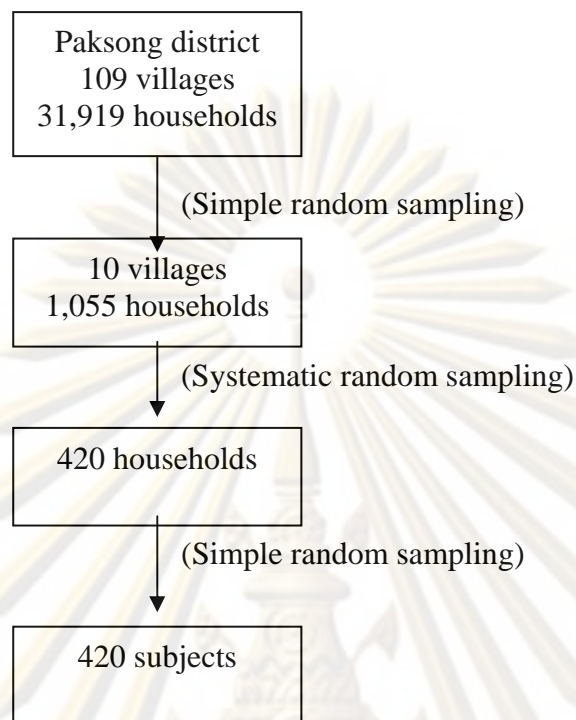


Figure 6: Multistage Random Sampling

3.6 Inclusion and Exclusion criteria

Inclusion criteria

- Age between 15-60 years at the time of survey
- Being member of selected household
- Living in the selected villages over a year
- Voluntarily agree to participate in the study

Exclusion criteria

- Member of selected household who have mental health problem
- Member of selected household who have deaf and dumb

3.7 Research instruments

A structured questionnaire will be used for this research and it will comprise of the following 6 parts:

1. Part A: General characteristic

This part of the questionnaire consists of questions on the demographic profile of the sample population with includes: age, gender, marital status, education, occupation, family member, monthly income, and duration of stay in Paksong district.

2. Part B: Knowledge on malaria

This part of the questionnaires comprise of vector of malaria, malaria species, breeding site, resting place, feeding time, cause, symptoms, treatment, prevention and control of malaria disease.

3. Part C: Sources of information about malaria

This part of the questionnaires comprised of the sources those people will receive the information about malaria disease and the type of information.

4. Part D: Attitude toward malaria

This part of questionnaire aim to determine the attitudes of the participant toward malaria such as perceived susceptibility, severity and threat

5. Part E: Practice regarding malaria prevention

Practice of malaria prevention focus on the sample population activities to prevent malaria infection.

6. Part F: Questionnaire for those who ever suffered from malaria

This part of questionnaire comprised of question which basically focus on how a person get malaria, how a person known that he/she get malaria and what do he/she do when they get sick.

3.8 Reliability

To establish the reliability the questionnaire will be tested among population in Ratchaburi province, Thailand. The internal consistency of the rating scales will be performed by Cronbach's alpha coefficient for analysis of attitude in order to get at least more than 0.8 of alpha value and Kuder-Richardson test for analysis of knowledge.

3.9 Validity test

To achieve the validity of the questionnaires, the reviewing literature and 3 consulting content experts will be performed.

3.10 Data collection

A method of data collection will be utilized. The sample size will be calculated. Ten research assistants will be selected from the staff member of the community health workers and they will be trained for one day about the objectives of this study, content of questionnaire and data collection process. Then, before asking the participants to fill up and answer the questionnaire, the interviewer will be explained the instructions of the questionnaire, purpose and benefit of the study, confidentiality and some ethical consideration. Finally, the consent form will be provided to the subjects and they are free to withdraw if they unwilling to participate.

3.11 Data analysis

After collection data, all data will be entered, cleaned, coded, and scored. All of data entry will be performed and analyzes by using mathematical method.

- Descriptive statistics such as percentage, mean standard deviation, median and range will be used for analyzing the general characteristics of the respondents as well as knowledge on malaria, attitude towards malaria and practice regarding malaria prevention.
- The Chi-square test (χ^2 test) and Fisher's exact test are will be used to determine the association between general characteristic, knowledge, attitude, and practice regarding malaria prevention. Level of statistical significant are set at $\alpha = 5\%$.

3.12 Scoring and its classification

For measurement of variables under study, the criteria of scoring to each item and classification of variables were as follows.

3.12.1 Knowledge about malaria

- The correct answer get: 1 score
- The wrong answer get: 0 score

The possible score ranged from 0 to 39, and respondent's knowledge was classified into three levels. The cut-of point for "Good knowledge": greater than 80% of 39 scores, "Moderate knowledge": from 60% to 80% of 39 scores, "Poor knowledge": less than 60% of 39 scores.

3.12.2 Attitude towards malaria

The answers were categorized into five levels: Strong agree, Agree, Neutral, Disagree, and Strong disagree.

- For positive items, the answer:
 - “Strong agree” get 4 scores
 - “Agree” get 3 scores
 - “Neutral” get 2 scores
 - “Disagrees” get 1 score
 - “Strong disagree” get 0 score
- A reverse score was given for negative items:
 - “Strong agree” get 0 scores
 - “Agree” get 1 scores
 - “Neutral” get 2 scores
 - “Disagrees” get 3 score
 - “Strong disagree” get 4 score

The respondents' attitude was classified into three levels. The cut of point for “Good/high attitude”: greater than 80% of 72 scores, “Moderate attitude”: from 60% to 80 % of 72 scores, “Poor attitude”: less than 60% of 72 scores.

3.12.3 Practice regarding malaria prevention

The answers were categorized into four levels: Always, Sometimes, and Never. For those who answered “Always” get 2 scores, “Sometimes” get 1 score, and “Never” get 0 score. The possible scores ranged from 0 to 36 scores, and the respondents' practice was classified into three levels “Good practice” greater than 80% of 36 scores, “Moderate practice”: from 60% to 80 % of 36 scores, “Poor practice”: less than 60% of 36 scores.

3.12.4 The risk profile of the household registers form

Table 1: The risk profile of the household registers form

Risk profile of household	Score if present	Score
At least 1 child < 1 year	1	
> 2 children < 5 years	1	
> 2 infant deaths in past 5 years	2	
Presence of communicable disease	1	
Illiterate mother	2	
Family member with disability	1	
Improper/no use of latrine	1	
New arrival (< 1 year)	1	
Total		

Rating scale:

- Low risk: 0 – 3
- Moderate risk: 4 – 6
- High risk: > 7

3.13 Limitation of the study

There might be some limitations and restrictions of this study since this study will be performed among population only in Paksong district. It may not represent the whole population of Lao PDR. This study relies on self-report; therefore, there is a source of information bias. Moreover, it is designed as a cross-sectional survey; so this study cannot find out the respondents' practice over time. Furthermore, the high risk areas are scattered and difficult to access. The population in this location consists of several ethnic groups with differ in language, culture, belief, life style. Most of

them had low income, low education resulting in variability of malaria prevention practice.

3.14 Application benefit

The study will assist to increase the knowledge among people in Paksong district to improve malaria prevention practice such as sleeping under insecticide treated nets. The people will know how to do when they get malaria infection. Moreover, the finding of this study will help government and non-government sectors involving in malaria control in Paksong district to be better understanding in malaria situation and better for policy planning to promote the malaria prevention and control.

3.15 Ethical consideration

This proposal will be submitted and approved by the ethical committee of Chulalongkorn University. The objective and purpose to this study will be explained to the respondents before signing the consent form and voluntary participation. Every received data will be treated carefully and confidentially. The respondents can refuse to join this study and no need to explain the reasons. The data will be used only in this project and their information will be kept secretly.

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CHAPTER IV

RESULTS

The study was an analytical cross-sectional research to study about knowledge, attitudes, and practices regarding malaria prevention among population in Paksong district; Champasack province; Lao People's Democratic Republic (Lao PDR). This chapter presents the finding from data analysis. The data analysis report on the survey, outcomes, and results, in following orders:

1. Socio-demographic characteristics of the respondents
2. Knowledge on malaria prevention
3. Source of information and source of health care
4. Attitude towards malaria prevention
5. Practice regarding malaria prevention
6. Specific information of respondents who experienced malaria infection
7. Association between socio-demographic characteristics with knowledge, attitude, and practice regarding malaria prevention
8. Association between receiving information about malaria and knowledge on malaria prevention
9. Association between history of malaria with practice regarding malaria prevention
10. Association between knowledge and attitudes
11. Association between practice with level of knowledge and attitudes of respondents regarding malaria prevention

The total number of subjects in this study was 401. The participants in this study were population in Paksong district age between 16-60 years who are responding in Paksong district. The residing area was divided into 10 villages which are sample random sampling from each village systematic random samplings were selection in this study. Table 1 show the frequency and percentage distribution of respondents of each village. 12% of respondent were from Lak 30 village and Lak 36 village, 6% were from Soansavang village, 11% were from Hoyzanh village, 9% were from Houazang village, 13% were from Kaphoe village, 8% were from Nongnathoeng village, 14% were from Paksong village, 10% were from Thongkalong village, and 4% were from Keokunmoeng vikkage. These subjects were from percentage of household of each village

Table 2: Frequency and percentage distribution of respondents by village

Village	Frequency	Percentage
Lak 30	49	12.2
Soansavang	23	5.7
Hoyzanh	44	11.0
Houazang	35	8.7
Kaphoe	52	13.0
Nongnathoeng	32	8.0
Paksong	58	14.5
Lak 36	49	12.2
Thongkalong	41	10.2
Keokunmoeng	18	4.5
Total	401	100

4.1 Socio-demographic characteristics of respondents

This part shows frequency distribution of selected variables describing background characteristics of the respondents. Table 3 reveals that socio-demographic characteristics such as age, gender, marital status, education, occupation, total family income per month, duration of stay in Paksong district and total family member.

The distribution of the proportions shows that the age of the sample was ranged from 17-60 years. The mean age was 41.29 and SD was 10.946. The majority of respondents (28%) were in the age group from 31-40 years, 28% of them were in age group 41-50 years, some of them were in age group 51-60 years and 21-30 years with 23% and 20% and the smallest number of respondents (1%) were in youngest age group of 17-20 years. More than half of the subject were male (66%). Majority of the respondents (87.3%) were married, 5.7% were widowed and only few of them single, divorced and separated with 3.2%, 3.5% and 0.2%. Majority of respondents (56.1%) had completed primary school education. There were 17.0% completed secondary school education, 16.2% were completed high school or college or university education, 10.7% have never attended school. Most of the respondents surveyed (85.8%) were agriculturist. About 5.5% and 3.2% of them were civil and teacher, 1.7% of them were health personnel and salesman; only a few percent were housewife and daily wage (2% and 0.5% respectively).

The level of economic status of the respondents had been assessed on the basis of monthly family income. Total of monthly family income ranged from 100,000 - 3,000,000 Kip. The mean income was 619,361.85, SD was 520,357.390. Majority of respondents (93.8%) had monthly family income less than 1,500,000 Kip; and about

6.2% of them had total family income more than 1,500,000 Kip. Around 94.3% of respondents had lived in Paksong district for more than five years and 5.7% were lived less than five years. 46%. Majority of respondents (45.9%) had total family member of 3-5 persons, 39.2% of respondents had total family member 6-8 persons, only 10%, 4% and 1% had total family member of 9-11 persons, 1-2 persons and 12-14 persons.

Table 3: Frequency and percentage distribution of respondents by socio-demographic characteristics (n = 401)

Socio-demographic characteristic	Frequency	Percentage
Age		
17-20	4	1.0
21-30	80	20.0
31-40	112	27.9
41-50	112	27.9
51-60	93	23.2

Mean = 41.29, SD = 10.946

Range= 17 - 60

Gender (n = 401)

Male	266	66.3
Female	135	33.7

Table 3: (continued) Frequency and percentage distribution of respondents by socio-demographic characteristics (n = 401)

Socio-demographic characteristic	Frequency	Percentage
Marital status (n = 401)		
Married	350	87.3
Widowed	23	5.7
Divorced	14	3.5
Single	13	3.2
Separated	1	0.2
Education (n = 401)		
Primary school	225	56.1
Secondary school	68	17.0
High school/College/University	65	16.2
Never attend school	43	10.7
Occupation (n = 401)		
Agriculturist	344	85.8
Civil of office	22	5.5
Teacher	13	3.2
Health personnel	7	1.7
Salesman	7	1.7
Housewife	6	1.5
Daily wage	2	0.5

Table 3: (continued) Frequency and percentage distribution of respondents by socio-demographic characteristics (n = 401)

Socio-demographic characteristic	Frequency	Percentage
Monthly family income (Kip) (n = 401)		
Less than 1,500,000	376	93.8
> = 1,500,000	25	6.2
Mean= 619361.85, SD= 520357.390		
Rang= 100,000-3,000,000		
Duration stay in Paksong district (n = 401)		
Less than 5 years	23	5.7
More than 5 years	378	94.3
Total family member (n = 401)		
1 - 2 persons	16	4.0
3 - 5 persons	184	45.9
6 - 8 persons	157	39.2
9 - 11 persons	40	10.0
12 - 14 persons	4	1.0
Mean = 2.93, SD = 0.312		

Table 4 shows the details of frequency and percentage of respondents' families who have mosquito net in the houses and shows the details of frequency and percentage of respondents' family who have enough mosquito nets for all family members. Nearly all of them (99%) have got the mosquito net in the house, only 1% did not have mosquito net in the house. Almost of respondents (90.3%) had enough mosquito nets for all family members; however, about 10% did not have enough mosquito nets for all members in the family.

Table 4: Respondents family have mosquito net and have enough mosquito net for all family members (n = 401)

Statement	Frequency (%)	
	Yes	No
Have got mosquito net in the family	396(98.8)	5(1.2)
Mosquito net enough for all family member	362(90.3)	39(9.7)

4.2 Knowledge on malaria prevention

Table 5 shows the frequency and percentage of respondents who answered correctly to each question concerning knowledge on malaria. There were still 1% of respondents who answer mosquito is not the vector of malaria and 1.2% of respondents who did not know that mosquito are the vector of malaria, while 3% to 9% of them also said that rat, dog, fly and cockroach are the vector of malaria. More than half of the respondents (51.9%) said that malaria mosquito bite at day time, and more than half of respondents (54.1%) said that malaria mosquito bite at both night time and day time which is not true because malaria mosquito bite only night time. In

order to examine the knowledge about the breeding site of malaria mosquito, 8.5%, 8.7% and 11.0% of respondents did not know that pond or lake, stagnant water and canal are breeding site of the mosquito, about 2.5%, 3.5% and 17.0% of respondents who said that pond or lake, stagnant water and canal are not breeding site of malaria mosquito. Regarding resting place of malaria mosquito, still 8% of respondents did not know that bushes is the resting place of malaria mosquito, and 6.2% and 6% of respondents who said that bushes and dark corner in the house were not resting place of malaria mosquito, while 6.2% of respondents misconceived that open place sunlight reach is the resting place of malaria mosquito. In terms of knowledge about transmission, almost of respondents (98.0%) knew that the bite of malaria infected mosquito can transmit malaria; however, about 35.9%, 24.9% and 16% of respondents who said that malaria can be transmitted through drinking contaminated water, eating contaminated food and having close contact with malaria patients, respectively.

About knowledge on symptoms of malaria, nearly all of the respondents (94.8%) knew that fever is the symptom of malaria, more than half of respondents knew that headache, chill, sweating, vomiting, and itching are the symptom of malaria (88.5%, 78.6%, 71.1%, 61.8% and 56.1% respectively). About 32.4% of them said that abdominal pain is not symptom of malaria and 23.2% did not know that abdominal pain is the symptom of malaria; while 56.1% of them misunderstood that itching is symptom of malaria. When asking knowledge about prevention and control of malaria, most of respondents knew that wearing long sleeve cloth (96.5%), sleep under a mosquito net (94.8%), using Insecticide Treated Bed Nets (ITNs) (99.0%),

spraying insecticide (94%), taking prophylaxis (96.8%), and making fire and smoke (91.5%) are away to prevent and control for malaria. Nevertheless, there were 17%, 24%, 20%, and 10% of respondents did not know that taking anti-malaria before go to the forest, emptying and filling the retain water, trimming bushes around the house, and clean dark corner in the house can prevent them from malaria.

Table 5: Frequency and percentage distribution of respondents who answered correctly to each question of knowledge on malaria

Knowledge of malaria (n = 401)	Correct answer	
	Frequency	percentage
Identify vector of malaria		
<i>Rat*</i>	283	70.6
<i>Dog*</i>	286	71.3
Mosquito	393	98.0
<i>Fly*</i>	294	73.3
<i>Cockroach*</i>	297	74.1
Feeding time of malaria mosquito		
<i>Day time*</i>	183	45.6
Nigh time	388	96.8
Breeding site of malaria mosquito		
Pond or lake	357	89.0
Stagnant water	352	87.8
Canal	289	72.1
Dry and clean place*	315	78.6

Table 5: (continued) Frequency and percentage distribution of respondents who answered correctly to each question of knowledge on malaria

Knowledge of malaria (n = 401)	Correct answer	
	Frequency	percentage
Resting place of malaria mosquito		
Bush	345	86.0
Domestic animal shelters	395	98.5
Tropic forest	397	99.0
Dark corner in the house	375	93.5
<i>Open place where sunlight reach*</i>	314	78.3
Malaria can be transmitted through		
<i>Drinking contaminated water*</i>	199	49.6
<i>Eating contaminated food*</i>	230	57.4
<i>Close contact with malaria infected patient*</i>	273	68.1
The bite of malaria infected mosquito	375	93.5
Symptom of malaria		
Fever	380	94.8
Headache	355	88.5
Chill	315	78.6
Sweating	285	71.1
Vomiting	248	61.8
Abdominal pain	178	44.4
<i>Itching*</i>	100	24.9

Table 5: (continued) Frequency and percentage distribution of respondents who answered correctly to each question of knowledge on malaria

Knowledge of malaria (n = 401)	Correct answer	
	Frequency	percentage
Ways to prevent and control malaria		
Wearing long-sleeve cloth	387	96.5
Sleep under a mosquito net	380	94.8
Using insecticide treated bed nets (ITNs)	397	99.0
Take anti-malaria drugs before go to the forest	332	82.8
Emptying and removing stagnant water	304	75.8
Trimming bushes around the house	319	79.6
Clearing dark corner in the house	359	89.5
Insecticide spray	376	93.8
Taking prophylaxis	388	96.8
Making fire and smoke	367	91.5

** Negative statement*

In order to summarize the knowledge towards malaria prevention, level of knowledge on malaria prevention among population in Paksong district was show in table 6. In general according to the knowledge of respondents on malaria, 59.1% Of subjects had good knowledge; some of them had moderate knowledge (20.4%), and 20.4% had poor knowledge, and in with rang of knowledge score 12 – 39 and the mean was 30.97, SD was 7.153.

In details, most of respond had good knowledge on malaria vector, prevention and mosquito (59.2%, 71.3% and 64.3% respectively) higher than that of malaria transmission (43.6%) and symptom (48.4%).

Table 6: Frequency and percentage distribution level of knowledge on malaria prevention (n = 401)

Item	Level of knowledge (%)		
	Good	Moderate	Poor
Overall knowledge of malaria	237(59.1)	82(20.4)	82(20.4)
Rang = 12 – 39			
Mean = 30.97, SD = 7.153			
Details knowledge of malaria			
Malaria vector (Q – 2)	237(59.1)	71(17.7)	93(23.2)
Malaria transmission (Q – 3)	175(43.6)	48(12.0)	178(44.4)
Malaria symptom (Q – 4)	194(48.4)	52(13.0)	155(38.7)
Malaria prevention (Q – 5)	286(71.3)	102(25.4)	13(3.2)
Malaria mosquito (Q – 6, 7, 8)	258(64.3)	79(19.7)	64(16.0)

4.3 Source of information on malaria

Table 7 shows that frequency and percentage of population in Paksong district who had received and heard any information about malaria. Among the respondents, 99% had heard information about malaria; however, there are 1% had never heard any information about malaria.

Table 7: Frequency and percentage distribution of respondents who had received or heard any information about malaria (n = 401)

Received or heard about malaria	Frequency	percentage
Yes	397	99.00
No	4	1.00

The frequency and percentage of respondents who had heard of malaria from each source of information was shown in table 8. As can be seen in this table, respondents could answer more than one source in the questionnaire and therefore, the total number of source information will be equal 100%. Among several source of information, the majority of respondents (71.3% and 70.3%) had received information of malaria from village health worker and community head leader. About 65.8% received information from hospital, 55.6% from health center, 47.9% from neighbor, and 30.7% from drug hawker, only 25.2% from family member, and 15.7% from tradition health worker.

Table 8: Frequency and percentage distribution of source of information from which respondents heard about malaria (n = 401)

Source of information*	Frequency (%)	
	Yes	No
Hospital	264(65.8)	137(34.2)
Health center	223(55.6)	178(44.4)
Home (family member)	101(25.2)	300(74.8)
Community head leader	282(70.3)	119(29.7)
Neighbor	192(47.9)	209(52.1)
Drug hawker	123(30.7)	278(69.3)
Tradition health	63(15.7)	338(84.3)
Village health worker	286(71.3)	115(28.7)

* Multiple responses allowed

Table 9 shows that frequency and percentage of respondents who had heard of malaria information from each media of information was shown in this table. Respondents could answer more than one media in the questionnaire and therefore, the total number of source information will be equal 100%. The majority of respondents (85.8%) had heard information of malaria from radio, more than half of respondents (61.6% and 58.6%) have heard malaria information from television and poster, the respondents who had heard information of malaria from newspaper, video complex disc, and magazine (30.7%, 29.9% and 16.7% respectively).

Table 9: Frequency and percentage distributions of media of information from each respondents heard about malaria (n = 401)

Media	Frequency (%)	
	Yes	No
Radio	344(85.8)	57(14.2)
Television	247(61.6)	154(38.4)
Video complex disc	120(29.9)	281(70.1)
Newspaper	123(30.7)	278(69.3)
Magazine	67(16.7)	334(83.3)
Poster	235(58.6)	166(41.4)

Refer to table 10, it shows that the frequency and percentage of respondents whose family members had ever suffered from malaria. Among the respondents, about 37% of respondents' family members ever suffer from malaria.

Table 10: Frequency and percentage distributions of respondents family members suffer from malaria (n = 401)

Family member suffer from malaria	Frequency	Percentage
Yes	147	36.7
No	254	63.3

Table 11 shows that out of 147 family, more than half of respondents (54.42%) said that hospital was their source of healthcare where they are first seeking for treatment, about 19%, 14% and 12% of respondents had first seeking with health center, village health worker and home, only 1% of them first seeking with clinic.

Table 11: Frequency and percentage distribution of respondents were first seeking for malaria treatment (n = 147)

First seeking for malaria treatment	Frequency	Percentage
Hospital	80	54.42
Health center	28	19.04
Home	17	11.56
Clinic	1	0.68
Village health worker	21	14.28

4.4 Attitude towards malaria prevention

Table 12 shows the frequency and percentage of respondents' attitude towards each question regarding malaria prevention. Most of respondents (99%) agree that malaria is serious and sometime life-threatening disease. About 32.7% of respondents confused that malaria can transmitted from person to person like common cold, 26.9% confused anyone cannot get malaria, and 62% the children and pregnant woman is not at risk of malaria. Most of them knew that keeping themselves from mosquitoes' bite is the best way to prevent them from getting malaria, and also sleep in bed net during night time is one way to prevent them from getting malaria (97% and 93% respectively). On other hand, 8% of respondent who did not know that malaria can re-infect. More than half of the respondents (62%) recognize that malaria cannot be cure spontaneously without any treatment; conversely, 15% confused they have to stay away from the patient. About 97% of respondents agree to have a blood test immediately when they suspected that they were suffering from malaria. Most respondents 94% will seek for an advice and treatment when they get malaria, and 96% knew that if malaria is not treated promptly, it can quickly become life-threatening, 94% also knew that it is dangerous when the medicine is not taken completely, and 89% knew that it is very important to check for an expired date for the drug before taking it. Almost of respondents 95% knew that they are in greater risk of getting malaria if they work at night or sleep over night in the forest. About 40% of respondents can buy anti-malaria drugs from drug store to treat themselves, and 7% they can stop medicine as soon as the symptom is disappeared.

Table 12: Frequency and percentage distribution of attitude towards malaria prevention (n = 401)

SA = Strong agree, A = Agree, N = Neutral, D = Disagree, SD = Strong disagree

Statement	SA	A	N	D	SD
	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
Serious and sometimes life-threatening disease	286(71.3)	111(27.7)	3(0.7)	1(0.2)	0(0.0)
Transmitted directly from Person to person like common cold*	28(7.0)	103(25.7)	27(6.7)	127(31.7)	116(28.9)
If not treated promptly, it can quickly become life-threatening	196(48.9)	187(46.6)	17(4.2)	1(0.2)	0(0.0)
The best way to prevent myself from getting malaria is to keep myself from mosquito bite	183(45.6)	205(51.1)	12(3.0)	1(0.2)	0(0.0)
Anyone can get malaria	157(39.2)	62(15.5)	74(18.5)	107(26.7)	1(0.2)
It can not be re-infected	141(35.2)	136(33.9)	93(23.2)	27(6.7)	4(1.0)
Sleep in mosquito net during night time is once way to prevent myself from getting malaria	201(50.1)	172(42.9)	18(4.5)	8(2.0)	2(0.5)
I can treat myself if got malaria*	9(2.2)	12(3.0)	55(13.7)	223(55.6)	102(25.4)
Only children and pregnant woman is at risk of malaria*	20(5.0)	109(27.2)	22(5.5)	151(37.7)	99(24.7)
One can recover from malaria spontaneously with out any treatment*	26(6.5)	221(55.1)	26(6.5)	34(8.5)	94(23.4)

Table 12: (continued) Frequency and percentage distribution of attitude towards malaria prevention (n = 401)

SA = Strong agree, A = Agree, N = Neutral, D = Disagree, SD = Strong disagree

Statement	SA	A	N	D	SD
	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
If someone got malaria people should avoid having close contact with him/her	11(2.7)	49(12.2)	102(25.4)	129(32.2)	110(27.4)
I should have my blood test immediately as soon as I suspect that, I have suffered from malaria	204(50.9)	185(46.1)	7(1.7)	3(0.7)	2(0.5)
I might be in greater risk of getting malaria if I work and sleep overnight in the forest	187(46.6)	194(48.4)	13(3.2)	4(1.0)	3(0.7)
I can stop the medicine as soon as the symptom is disappeared	13(3.2)	16(4.0)	99(24.7)	173(43.1)	100(24.9)
It is dangerous when the medicine is not taken completely.	163(40.6)	214(53.4)	8(2.0)	13(3.2)	3(0.7)
I will seek for an advice or treatment when I get malaria	170(42.4)	207(51.6)	8(2.0)	13(3.2)	3(0.7)
I can buy anti-malaria drugs from drug store to treat myself, when I get malaria	126(31.4)	33(8.2)	65(16.2)	168(41.9)	9(2.2)
It is very important to check for an expired date of the drug before taking it	119(29.7)	237(59.1)	36(9.0)	6(1.5)	3(0.7)

In other summarize the attitude toward malaria prevention, the distribution of attitudes level toward malaria prevention is shown in table 13. There were 33.2% of subjects who had good attitude, more than half of respondents (58.1%) had moderate attitude, while only 8.7% of them had low attitude, and within the rang of attitude score 36 – 72, the mean was 53.94.

Table 13: Frequency and percentage distributions of attitude level towards malaria prevention (n = 401)

Level of attitude toward malaria prevention	Frequency	Percentage
Poor	35	8.7
Moderate	233	58.1
Good	133	33.2

Mean = 53.94, SD = 10.457 and Rang = 36 – 72

4.5 Practice regarding malaria prevention

The detail of frequency and percentage distributions of respondents practice regarding malaria prevention for each question was showed in table 14. Regarding practice related to mosquito net, 90.8% of respondent always sleep under mosquito net while 1% never sleep in them. About 1 – 3 of respondents always checked for the hole from mosquito net and repair the mosquito net once they find the hole (28.4% and 29.4% respectively). About 62.3% of respondents always use ITNs. More than half of respondents (80.3%) of all family member sleep under mosquito net, conversely 1 -4 of them (24.4%) never used ITNs. Only 1- 4 of respondents (25.2%) always wear long-sleeve cloth when working at night time.

Concerning practice of malaria prevention on mosquito repellent in terms of coil and both in-door and out-door spray, a small percentage of respondents always used (9.2%, 6.7% and 7.7% respectively) regularly use due to unavailable and unaffordable of material.

Regarding practices of malaria prevention on environment, 21.4% always clean stagnant water near their house while 13.2% never clean stagnant water, and 23.9% always clear the dark corner in the house, 22.9% of respondents who always clean the bushes around the house.

Especially, when asking about practice of malaria prevention on the coffee field/forest, 60.8% of the respondents always go to coffee field/forest, and only 60.3% of respondents who said they never take anti-malaria drugs before going to the coffee field/forest, and only 32.9% of respondents always sleep under mosquito net in coffee field/forest at night time while 16.2% never sleep under bed net when they sleep in the coffee field/forest at night time. Conversely, more than half of them (58.1%) always go to health services when they think they have suffered from malaria.

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Table 14: Frequency and percentage distributions of respondents practice towards each question about malaria prevention

Practice toward malaria prevention (n=401)	Frequency	Percentage
Sleep under mosquito net in your house		
Always	364	90.8
Sometimes	33	8.2
Never	4	1.0
Check for a mosquito net whether it has hole		
Always	114	28.4
Sometimes	250	62.3
Never	37	9.2
Immediately repair the net once you find out the hole		
Always	118	29.4
Sometimes	237	59.1
Never	46	11.5
Use insecticide treated bed nets (IBNs)		
Always	250	62.3
Sometimes	53	13.2
Never	98	24.4
All family members in the household sleep in mosquito net		
Always	322	80.3
Sometimes	61	15.2
Never	18	4.5
Use mosquito repellent coil at night time		
Always	37	9.2
Sometimes	63	15.7
Never	301	75.1
Use repellent to prevent yourself from mosquito bite		
Always	141	35.1
Sometimes	145	36.2
Never	115	28.7
Use indoor anti-mosquito spray in your house		
Always	27	6.7
Sometimes	29	7.2
Never	345	86.0
Use outdoor anti-mosquito spray for your house		
Always	31	7.7
Sometimes	79	19.7
Never	291	72.6

Table 14: (continued) Frequency and percentage distributions of respondents practice towards each question about malaria prevention

Practice toward malaria prevention (n=401)	Frequency	Percentage
Wear long-sleeve cloth when stay in coffee field/forest at night time		
Always	101	25.2
Sometimes	273	68.1
Never	27	6.7
Clean the bush around your house		
Always	92	22.9
Sometimes	287	71.6
Never	22	5.5
Clean stagnant water near your house		
Always	86	21.4
Sometimes	262	65.3
Never	53	13.2
Clear the dark corner in your house		
Always	96	23.9
Sometimes	298	74.4
Never	7	1.7
Take anti-malaria before go to coffee field/forest		
Always	37	9.2
Sometimes	122	30.4
Never	242	60.3
Sleep under mosquito net in coffee field/forest		
Always	132	32.9
Sometimes	204	50.9
Never	65	16.2
Go to health services when you think you have malaria		
Always	233	58.1
Sometimes	166	41.4
Never	2	0.5

In order to summarize practices regarding malaria prevention, the distribution of practices level on malaria prevention is shown in table 15. Unlike knowledge and attitude level, all of respondents can be categorized in practice level (poor practice, moderate practice and good practice), only 5.7% of them had good practice, 19.5% had moderate practice, and more than half of respondents (74.8%) had poor practice regarding malaria prevention, within the rang 6 – 34, and mean was 18.64, SD was 5.611.

Table 15: Frequency and percentage distribution of practice level regarding malaria prevention (n = 401)

Level of practice regarding malaria prevention	Frequency	Percentage
Poor	300	74.8
Moderate	78	19.5
Good	23	5.7

Mean = 18.64, SD = 5.611

Rang = 6 - 34

4.6 Specific information of respondents who were experienced malaria infection

Table 16 indicates that about 25.7% out of 401 respondents had experienced malaria infection.

Table 16: Frequency and percentage of respondents who experienced malaria infection

Statement	Frequency	
	Yes	No
Have you ever suffered from malaria?	103(25.7)	298(74.3)

Table 17 point out that 78.6% of 103 respondents got malaria because of mosquito bite, 18.4% sleep over night in coffee field / forest, and 1.9% working at night time, only 1.0% of respondents got malaria because of drinking contaminant water and eating contaminant food which is not true.

Table 17: Frequency and percentage distributions of how did respondents get malaria infected (n = 103)

Statement	Frequency	Percentage
How did you get malaria? **		
Mosquito bite	81	78.6
Sleep over night in coffee field/forest	19	18.4
Working at night time	2	1.9
Drinking and eating contaminant water and food	1	1.0

** Multiple answers are allowed

Table 18, shows when asking about how respondents knew that they get malaria, most of respondents (91%) knew from the health personnel after having blood test and 9% of respondents knew from village health worker after having blood test

Table 18: Frequency and percentage distributions of shows did respondents know that they get malaria (n = 103)

Statement	Frequency	Percentage
How did you know that you get malaria? **		
From health personnel	94	91.3
From village health worker	9	8.7

Concerning drug, table 19 shows that 100% of respondents had received drug and treatment for malaria, 75.7% received drug/treatment from health service, 11.7% and 10.7% of respondents who received drug/treatment from village health worker and at home (family member). Almost of respondents (98%) completed the course of medication as health personnel prescribed; conversely, 2% stop medication as soon as symptom had disappeared. According to recovered day, respondents' recovery day ranged from 3 to 30 days. Observably, 39.8% of respondents recovered with less than 5 days, half of respondents (52.4%) recovered among 6 - 10 days while 7.8% said the recovery day was more than 10 days.

Table 19: Frequency and percentage distribution of type of drug respondents received/treatment and recover day (n = 103)

Statement	Frequency	Percentage
Received drug/treatment		
Yes	103	100
No	0	0
Place where drug received/treatment		
Hospital	58	56.3
Health center	20	19.4
Village health worker	12	11.7
Home (family member)	11	10.7
Clinic	1	1
Drug hawker	1	1
Stop drug as soon as symptom had disappeared		
Yes	2	2.0
No	101	98.0
Recover days		
Less than 5 days	41	39.8
6 – 10 days	54	52.4
More than 10 days	8	7.8
Rang = 3 - 30		

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4.7 Association between socio-demographic characteristics with knowledge, attitude and practice regarding malaria prevention

The association between socio-demographic characteristics and knowledge on malaria prevention was shown in table 20. It showed that there were 2 variables statistically associated with chi-square test (P -value < 0.05). We found that material status (p -value = 0.007), education level (p -value < 0.001), current occupation (p -value < 0.001), total family income (p -value < 0.001) and length time stay ($p < 0.001$) were related to knowledge on malaria prevention. The proportion of good knowledge was good with single, divorced, widowed and separated group (76.5%) and 56.6% of respondents with married group.

Regarding education, surprisingly, good knowledge was highest in the group with primary and secondary education level (65.5%), 45.9% of respondents with high school and college/university education level while 39.5% of respondents who never attend school had good knowledge.

Regarding occupation, good knowledge was high with officer group (88.1%), 66.7% of respondents with housewife and 55.2% of them with working group.

Regarding total family income, good knowledge was lowest among those who total family income less than 1,000,000 Kip per month (55.5%) while it was high in the group with income between 1,000,000 – 2,000,000 Kip per month and more than 2,000,001 Kip per month (84.4% and 87.5% respectively).

Regarding length time stay, good knowledge was high with group length time stay more than 5 years (61.9%) and only 13% of respondents who stay less than 5 years in Paksong district had good knowledge.

Table 20: Association between socio-demographic characteristics and knowledge regarding malaria prevention (n = 401)

Socio-demographic characteristics	Total Respondents (N)	Knowledge N (%)		P - value
		Good	Moderate + Poor	
Age group (years)				
16 – 30	84	45(53.6)	39(46.4)	0.304
31 – 50	223	131(58.7)	92(41.3)	
> 50	94	61(64.9)	33(35.1)	
Gender				
Male	266	152(57.1)	114(42.9)	0.263
Female	135	85(63.0)	50(37.0)	
Marital status				
Married	350	198(56.9)	152(43.1)	0.007*
Single + Divorced	51	39(76.5)	12(23.5)	
+ Widowed + separated				
Education				
Never attend school	43	17(39.5)	26(60.5)	0.000*
Primary school +	284	186(65.5)	98(34.5)	
Secondary school				
High school +	74	34(45.9)	40(54.1)	
College/University				
Occupation				
Working group	353	196(55.5)	157(44.5)	0.000*
Officer group	42	37(88.1)	5(11.9)	
Housewife	6	4(66.7)	2(33.3)	
Monthly family income (Kip)				
< 1000000	348	192(55.2)	155(44.8)	0.000*
1000000-2000000	45	38(84.4)	7(45.6)	
>2000001	8	7(87.5)	1(12.5)	

Table 20: (continued) Association between socio-demographic characteristics and knowledge regarding malaria prevention (n = 401)

Socio-demographic characteristics	Total Respondents (N)	Knowledge N (%)		
		Good	Moderate + Poor	P - value
Total family member (Person)				
1 – 5	200	112(56.0)	88(44.0)	0.208
> 5	201	125(62.2)	76(37.8)	
Length of stay (years)				
< 5	23	3(13.0)	20(87.0)	0.000*
> 5	378	234(61.9)	144(38.1)	

* Significant by chi-square Test

From association between socio-demographic characteristics and attitudes towards malaria prevention of the respondents was shown in table 21. It showed that there were 2 variables statistically associated with chi-square test (P-value < 0.05). We found that there was highly significant difference between education level and attitude towards malaria prevention (p = 0.020), occupation (p < 0.001), and monthly family income (p < 0.001), length time stay (p = 0.002). The proportion of good attitude was highest in the group with high school and college/university education level (21.6%), 37.3% of respondents with primary and secondary education level had good attitude while 25.6% of respondents who never attend school had good attitude.

Regarding occupation, good attitude was high in officer group (83.3%), 33.3% of respondents in housewife and 27.2% of them in working group.

Regarding total family income, good attitude was lowest among those who total family income less than 1,000,000 Kip per month (27.6%) while in the group with income between 1,000,000 – 2,000,000 Kip per month and more than 2,000,001 Kip per month (73.3% and 50.0% respectively).

Regarding length time stay, good attitude was high with length time stay group more than 5 years (34.9%) and only 4.3% of respondents who stay less than 5 years in Paksong district had good knowledge.

Table 21: Association between socio-demographic characteristics and attitude regarding malaria prevention (n = 401)

Socio-demographic characteristics	Total Respondents (N)	Attitude N (%)		P - value
		Good	Moderate + Poor	
Age group (years)				
16 – 30	84	30(35.7)	54(64.3)	
31 – 50	223	74(33.2)	149(66.8)	0.789
> 50	94	29(30.9)	65(69.1)	
Gender				
Male	266	82(30.8)	184(69.2)	0.162
Female	135	51(37.8)	84(62.2)	
Marital status				
Married	350	113(32.3)	237(67.7)	0.326
Single + Divorced + Widowed + separated	51	20(39.2)	31(60.8)	
Education				
Never attend school	43	11(25.6)	32(74.4)	
Primary school + Secondary school	284	106(37.3)	178(62.7)	0.020*
High school + College/University	74	16(21.6)	58(78.4)	
Occupation				
Working group	353	96(27.2)	257(72.8)	
Officer group	42	35(83.3)	7(16.7)	0.000*
Housewife	6	2(33.3)	4(66.7)	

Table 21: (continued) Association between socio-demographic characteristics and attitude regarding malaria prevention (n = 401)

Socio-demographic characteristics	Total Respondents (N)	Attitude N (%)		
		Good	Moderate + Poor	P - value
Monthly family income (Kip)				
< 1000000	348	96(27.6)	252(72.4)	0.000*
1000000-2000000	45	33(73.3)	12(26.7)	
>2000001	8	4(50.0)	4(50.0)	
Total family member (Person)				
1 – 5	200	66(33.0)	134(67.0)	0.943
> 5	201	67(33.3)	134(66.7)	
Length of stay (years)				
1 - 5	23	1(4.3)	22(95.7)	0.002*
> 5	378	132(34.9)	246(65.1)	

* Significant by chi-square Test

The association with between socio-demographic characteristics and practice on malaria prevention was shown in table 22. It showed that there were 2 variables statistically associated with chi-square test (P-value < 0.05). We found that there was highly significant difference between gender and practice towards malaria prevention (p = 0.017), occupation (p < 0.001) and total monthly family income (p < 0.001). The proportion of good practice was highest in female group (9.6%) and 3.8% in male group.

Regarding occupation, good practice was high with officer group (38.1%), 33.3% of respondents with housewife and 1.4% of them with working group.

Regarding total family income, good practice was lowest among those who total family income less than 1,000,000 Kip per month (2.9%) while in the group with income between 1,000,000 – 2,000,000 Kip per month and more than 2,000,001 Kip per month found 24.4% and 25.0% , respectively.

Table 22: Association between socio-demographic characteristics and practice regarding malaria prevention (n = 401)

Socio-demographic characteristics	Total Respondents (N)	Practice N (%)		P - value
		Good	Moderate + Poor	
Age group (years)				
16 – 30	84	3(3.6)	81(96.4)	0.559
31 – 50	223	15(6.7)	208(93.3)	
> 50	94	5(5.3)	89(94.7)	
Gender				
Male	266	10(3.8)	256(96.2)	0.017*
Female	135	13(9.6)	122(90.4)	
Marital status				
Married	350	20(5.7)	330(94.3)	0.962
Single + Divorced	51	3(5.9)	48(94.1)	
+ Widowed + separated				
Education				
Never attend school	43	0(0.0)	43(100.0)	0.104
Primary school +	284	16(5.6)	268(94.4)	
Secondary school				
High school + College/University	74	7(9.5)	67(90.5)	
Occupation				
Working group	353	5(1.4)	348(98.6)	0.000*
Officer group	42	16(38.1)	26(61.9)	
Housewife	6	2(33.3)	4(66.7)	
Monthly family income (Kip)				
< 1000000	348	10(2.9)	338(97.1)	0.000*
1000000-2000000	45	11(24.4)	34(75.6)	
>2000001	8	2(25.0)	6(75.0)	

Table 22: (continued) Association between socio-demographic characteristics and practice regarding malaria prevention (n = 401)

Socio-demographic characteristics	Total Respondents (N)	Practice N (%)		P - value
		Good	Moderate + Poor	
Total family member (Person)				
1 – 5	200	11(5.5)	189(94.5)	0.553
> 5	201	12(6.0)	189(94.0)	
Length of stay (years)				
1 - 5	23	0(0.0)	23(100.0)	0.084
> 5	378	23(6.1)	355(93.9)	

* Significant by chi-square Test

4.8 Association between ever hearing of malaria with knowledge on malaria prevention

The result showed that there was significant difference between ever hearing of malaria and knowledge on malaria prevention ($p < 0.001$), as presented in table 23. Among the respondent with good knowledge was higher in those who had heard of malaria (75.6%) than those who never heard of malaria (24.4%).

Table 23: Association between ever hearing of malaria and knowledge on malaria prevention (n = 401)

Have you ever heard of malaria?	Total Respondent (N)	Knowledge N (%)		p - value
		Good	Moderate and poor	
Yes	308	233(75.6)	75(24.4)	0.000*
No	93	4(4.3)	89(95.7)	

* Significant by chi-square Test

4.9 Association between ever hearing of malaria with attitude on malaria prevention

As presented in table 24, there was significant association between respondents who had heard of malaria and attitude on malaria prevention ($p < 0.001$).

Table 24: Association between ever hearing of malaria and attitude on malaria prevention (n = 401)

Have you ever heard of malaria?	Total Respondent (N)	Attitude N (%)		p - value
		Good	Moderate and poor	
Yes	308	130(42.2)	178(57.8)	0.000*
No	93	3(3.2)	90(96.8)	

* Significant by chi-square Test

4.10 Association between ever hearing of malaria with practice on malaria prevention

As presented in table 25, there was significant association between respondent those who had heard of malaria and practice on malaria prevention ($p = 0.025$).

Table 25: Association between ever hearing of malaria and practice on malaria prevention (n = 401)

Have you ever heard of malaria?	Total Respondent (N)	Practice N (%)		p - value
		Good	Moderate and poor	
Yes	308	23(7.5)	285(92.5)	0.025*
No	93	3(3.2)	90(96.8)	

* Significant by chi-square Test

4.11 Association between receiving of information about malaria and knowledge on malaria prevention

There was no significant association between gaining about information and knowledge on malaria prevention ($p = 0.710$), as presented in table 26.

Table 26: Association between receiving of malaria information and knowledge on malaria prevention (n = 401)

Have you ever received or heard any information about malaria?	Total Respondent (N)	Knowledge N (%)		p - value
		Good	Moderate and poor	
Yes	397	235(59.2)	162(40.8)	0.710
No	4	2(50.0)	2(50.0)	

4.12 Association between receiving of information about malaria and attitude on malaria prevention

As presented in table 27, there was no significant association between about information and attitude and practice on malaria prevention ($p = 0.727$)

Table 27: Association between receiving of information about malaria and attitude on malaria prevention (n = 401)

Have you ever received or heard any information about malaria?	Total Respondent (N)	Attitude N (%)		p - value
		Good	Moderate and poor	
Yes	397	132(33.2)	265(66.9)	0.727
No	4	1(25.0)	3(75.0)	

4.13 Association between receiving of information about malaria and practice on malaria prevention

As presented in table 28, there was no significant association between about information practice on malaria prevention ($p = 0.620$)

Table 28: Association between receiving of information about malaria and practice on malaria prevention

Have you ever received or heard any information about malaria?	Total Respondent (N)	Practice N (%)		p - value
		Good	Moderate and poor	
Yes	397	23(5.8)	374(94.2)	0.620
No	4	0(0.0)	4(100.0)	

4.14 Association between history of malaria infection and knowledge regarding to malaria prevention

There was no significant association between history of malaria infection and knowledge on malaria prevention ($p = 0.977$), as presented in table 29.

Table 29: Association between history of malaria infection and knowledge on malaria prevention

Have you ever got malaria?	Total Respondent (N)	Knowledge N (%)		p - value
		Good	Moderate and poor	
Yes	103	61(59.2)	42(40.8)	0.977
No	298	176(59.1)	122(40.9)	

4.15 Association between history of malaria infection and attitude regarding to malaria prevention

Table 30 shown that there was significant association between history of malaria infection and attitude on malaria prevention ($p = 0.003$).

Table 30: Association between history of malaria infection and attitude on malaria prevention

Have you ever got malaria?	Total Respondent (N)	Attitude N (%)		p - value
		Good	Moderate and poor	
Yes	103	22(21.4)	81(78.6)	0.003*
No	298	111(37.2)	187(62.8)	

* Significant by chi-square Test

4.16 Association between history of malaria infection and practice regarding to malaria prevention

Table 31 shown that there was no significant association between history of malaria infection and practice on malaria prevention ($p = 0.055$).

Table 31: Association between history of malaria infection and practice on malaria prevention

Have you ever got malaria?	Total Respondent (N)	Practice N (%)		p - value
		Good	Moderate and poor	
Yes	103	2(1.9)	101(98.1)	0.055
No	298	21(7.0)	277(93.0)	

4.17 Association between knowledge and attitude of malaria prevention

There was significant association between knowledge and attitude on malaria prevention ($p < 0.001$), as presented in table 32.

Table 32: Association between knowledge and attitude on malaria prevention

Knowledge level	Total Respondent (N)	Attitude N (%)		p - value
		Good	Moderate and poor	
Good	237	123(51.9)	114(48.1)	0.000*
Moderate and poor	164	10(6.1)	154(93.9)	

* Significant by chi-square Test

4.18 Association between knowledge and practice of malaria prevention

Table 33 shown that, there was significant association between knowledge and attitude on malaria prevention ($p < 0.001$).

Table 33: Association between knowledge and practice on malaria prevention

Knowledge level	Total Respondent (N)	Practice N (%)		p - value
		Good	Moderate and poor	
Good	237	23(9.7)	214(90.3)	0.000*
Moderate and poor	164	0(0.0)	164(100.0)	

* Significant by chi-square Test

4.19 Association between attitude and practice of malaria prevention

Table 34 showed that, there was significant association between knowledge and attitude on malaria prevention ($p < 0.001$).

Table 34: Association between attitude and practice on malaria prevention

Attitude	Total Respondent (N)	Practice N (%)		p - value
		Good	Moderate and poor	
Good	133	21(15.8)	112(84.2)	0.000*
Moderate and poor	268	2(0.7)	266(99.3)	

* Significant by chi-square Test

CHAPTER V

DISCUSSION, CONCLUSIONS AND RECOMMENDATION

This chapter first presents about discussion, limitations, conclusion and recommendations of research findings of this study.

A cross-sectional study was carried out among population in Paksong district, Champasack province, Lao PDR. Data were corrected by using structured questionnaire. The respondents were 401 populations in Paksong district age 15 - 60 years resided in the study area.

The general objective of this study is to assess the knowledge, attitude and practice regarding malaria prevention of population in Paksong district, Champasack province, Lao PDR.

More specifically, this study aimed to:

- Describe the socio-demographic characteristics such as age, gender, material status, education level, occupation, duration of stay, etc.
- Assess and determine the level of knowledge, various attitudes and extent of practice regarding malaria prevention among population in Paksong district.
- Describe the sources of information about malaria.
- Identify relationships between malaria prevention practices with socio-demographic characteristics, source of information, level of knowledge and attitude.

5.1 Discussion

From this study, we found that marital status, education, occupation, monthly family income and length time stay were significantly associated with knowledge on malaria prevention, ($p = 0.007$, $p < 0.001$, $p < 0.001$, $p < 0.001$, $p < 0.001$ respectively).

Moreover, education, occupation, monthly family income and length time stay were significantly associated with attitude on malaria prevention, ($p = 0.020$, $p < 0.001$, $p < 0.001$, $p = 0.002$ respectively).

There were significant associated with practice on malaria prevention and gender, occupation and total family income, ($p = 0.017$, $p < 0.001$, $p < 0.001$ respectively).

Concerning to overall knowledge on malaria prevention, 59% out of 401 subjects had good knowledge. This figure was quite lower than the finding in Umpiem Mai Refugee camp, Phobphra district, Tak Province Thailand (62%) (Phensaenggam, 2008). Almost of respondents (94.8%) had knowledge on malaria prevention by sleep under mosquito net and 99.0% of respondents used impregnated bed net (IBN), these figure was higher than the finding of Population Service International's (PSI) Core Values who conducted the study in 5 Provinces (Attapeu, Champasack, Salavan, Savannakhet, Sekong Provinces), Lao PDR (PSI, 2004). The proportion of people with good knowledge of sleeping under a mosquito net was 40.9% and more than half of them never sleep under IBN (72%).

The report of poor knowledge on malaria transmission, malaria symptom, and malaria vector were 44.4%, 38.7% and 23.3% respectively. These were higher than the finding of Umpiem Mai Refugee camp, Phobphra district, Thailand (Phensaenggam, 2008). The proportion of people with poor knowledge on malaria transmission was 38%; malaria symptom 1.3% and malaria vector 24%.

There were still 35.9% of respondents misunderstood that drinking contaminated water can transmits malaria, 24.9% believed that by eating contaminated food can transmits malaria, 16% had a misconception that malaria can transmitted by closed contact with malaria patient and 32.7% had a misconception that malaria can be transmitted from person to person like common cold. These were lower than the study in Umpiem Mai Refugee camp, Phobphra district, Thailand (Phensaenggam, 2008). The respondents were misunderstood drinking contaminated water, eating contaminated food can transmits malaria and misconception that malaria can transmitted by closed contact with malaria patient and misconception that malaria can be transmitted from person to person like common cold (76%, 58%, 52% and 52% respectively)

There were still 3.7% of respondents identified rat as malaria vector, 3% as dog, 9.2% as fly and 6.7% as cockroach. Figure were very lower than study in Umpiem Mai Refugee camp, Phobphra district, Thailand (Phensaenggam, 2008), there were 29% as rat, 26% as dog, 28% as fly and 21% as cockroach.

Regarding to the knowledge of respondents about mosquito (malaria vector) was most of respondents, 89% knew about the breeding site of malaria mosquito are

in pond and lake, 87.7% was stagnant water, 72% was canal and 78.6% dry and clean place was not breeding site of malaria mosquito. Nearly, all of them said that malaria mosquito resting site were bushes around the house, domestic animal shelter, topic forest and dark corner in the house (86%, 98.5%, 99% and 93.5% respectively).

About 79% of respondents could cite the three main symptom of malaria (fever, chills and headache). These were higher than survey in Lao PDR (PIS, 2004) only 12% were found. We found that the knowledge of respondents on malaria prevention by wearing long sleeves when working and staying at night in the coffee field and forest (96.5%), about 82.8% of respondents were taking anti-malaria before go to the coffee field and forest.

Regarding knowledge on malaria prevention, statistically, were two variables significant association with knowledge and marital status ($p = 0.007$), education ($p < 0.001$), occupation ($p < 0.001$), total family income ($p < 0.001$) and length time stay ($p < 0.001$). More over, there were significant association between ever heard of malaria and knowledge ($p < 0.001$), attitude ($p < 0.001$) and practice ($p < 0.001$). As the result, the program of health education needs to enhance the knowledge on malaria vector, transmission, as well as symptoms which are very important and essential information in terms of malaria prevention.

On the respondents' attitudes towards malaria prevention, 33.2% of respondents had positive attitudes towards malaria prevention, 58.1% had moderate attitudes and 8.7% had negative attitudes. This was lower than the study in Umpiem Mai Refugee Camp, Thailand (40.1%) of respondents had positive attitude level.

58.3% of respondents had moderate attitude while 1.6% had negative attitude level of malaria prevention (Phensaengngam, 2008).

This study revealed out few incorrect attitudes towards malaria prevention even though there was no statistical confirm the association between attitude with knowledge and practice on malaria prevention. About one third of respondents (32.7%) agree that malaria can be transmitted from person to person like common cold. Besides, there was 16% thought that malaria could be transmitted through having close contact with malaria patient while 7.2% thought that it was fine to stop the medicine immediately as soon as the symptom gone and 39.6% agreed that they could buy the drug to treat themselves. Hence, the program should focus on detail information of irrational drug use may cause drug resistant due to insufficient doses of anti-malaria drug. Statically, the result in this study showed there was significant association education, occupation, total family income and length time stay with attitude towards malaria prevention ($p = 0.020$, $p < 0.001$, $p < 0.001$, $p = 0.002$). Therefore, these points are needed to be focused on malaria's intervention programs in this area. It is possible that the more you read, the more understand and the better attitude you will have.

In relation to level of practice out of 401 respondents, only 5.7% had good practice, 19.5% had moderate practice while most of respondents (74.8%) had poor practice regarding malaria prevention. This result was quite higher than study in Thailand (Phensaengngam, 2008) and in Vietnam by Tien (Tien, 2005)

Most of respondents have good practice in terms of mosquito net (90.8%) always sleep in mosquito net. About 32.9% always sleep in mosquito net when they went to the coffee field/forest. It was possible that they did not regularly perform such practice of malaria prevention, there was still 9.7% of respondents did not have enough mosquito nets for all family members. However, only 62.3% of the respondents always using impregnated bed net, 13.3% of them sometime used and 24.4% never used impregnated bed net.

According to practice of elimination breeding sited of the malaria mosquito, only 22.9% of respondents always clean the bushes around the house, 21.4% always clean stagnant water near the house and 23.9% always clear dark corner in the house. This figure was lower than the study in Thailand (Phensaengngam, 2008) and in Vietnam by Tien (Tien, 2005)

On the other hand, there was very low level or poor practice regarding mosquito repellent, mosquito coil, indoor and outdoor anti-mosquito spray (6%). It showed that only 22.9% always use repellent to prevent them from mosquito bite, this finding was higher than the study in Tak province, Thailand (Phensaengngam, 2008) and in Vietnam by Tien (Tien, 2005). Statistically, there was highly significant association between practice with gender, occupation and family income ($p = 0.017$, $p < 0.001$ and $p < 0.001$ respectively). Further, there was significant association between history of malaria infection with practice regarding malaria prevention ($p = 0.003$). This finding was analogous to the study conducted in Tak province, Thailand ($p = 0.043$) (Phensaengngam, 2008) and Surin province ($p = 0.011$) (Duad, 2001)

In this study, the proportion of population with good malaria knowledge in some extent was high (59.1%), the proportion of good attitude was low (33.2%) while proportion of good practice malaria prevention was very low (5.7%). Therefore, there were factors other than knowledge of malaria prevention that have an effect on malaria prevention. This study reveals that poor economic condition, working group of occupation, gender, married of material status and less than 1 to 5 years ago of length time stay are playing big role in this area and have direct bearing on the problem of malaria prevention and control in Paksong district, Champasack province, Lao PDR.

Limitations

Due to time constraint, the questionnaire items were not able to bring out the details and reasons of all aspects of malaria prevention such as mosquito repellent, insecticide spraying, anti-malaria drug use and malaria services provide by NGOs.

This cross-sectional study, so we cannot find the causality of study factors. We did not know which factor was cause, and which factor was effect. Besides, this study cannot find out the respondent's practice over time. This study relied on self-report. As a result, there was the source of information bias.

5.2 Conclusion

This research design was a cross-sectional study and it aimed to assess the knowledge, attitude and practice of population in Paksong district, Champasack province regarding malaria prevention. Furthermore, it aimed to identify the association between general characteristics, knowledge, attitude and practice in this

population. The research was carried out in January 2009 by questioning 401 people. Data was collected by using structure questionnaire.

5.2.1 Socio-demographic characteristics of respondents

In term of socio-demographic characteristics of the sample, the age rang of 17 – 60 years old with the average age 41.29 years. The rate of male was twice higher than female (66.3% was male, 33.7% was female). The majority of respondents were married (87.3%) while divorced, widowed and separated were 9.5% and 3.2% was single. Approximately 56.1% of respondents were primary school education level, 85.8% of respondents were agriculturist and 57.9% of the respondents had total family income between 100,000 to 500,000 Kip per month. Nearly all of the subjects (94.3%) living in Paksong district more than 5 years and almost of the respondents had total family member of 3 to 5 and 6 to 8 persons (45.9% and 39.2% respectively).

5.2.2 Knowledge on malaria prevention

The results of this research on overall knowledge of malaria showed that 59.1% of respondents had good knowledge and about 20.4% and 20,4% of respondent were moderate and poor knowledge level, consider to each knowledge of malaria disease, 71.3% had good knowledge on malaria prevention, 64.3% had good knowledge on mosquito and 59.1% had good knowledge on malaria vector. On the other hand, there were 44.4% of the respondents had poor knowledge on malaria transmission and 38.7% had poor knowledge on malaria symptom.

5.2.3 Attitude towards malaria prevention

In relation to attitude towards malaria prevention, the results of the research showed that 33.2% of the subjects had good attitude, 58.1% had moderate attitude and 8.7% had poor attitude towards malaria prevention.

5.2.4 Practice regarding malaria prevention

More than half of the respondents (74.8%) had poor practice level regarding malaria prevention while only 5.7% had good practice level regarding malaria prevention.

5.2.5 The association between socio-demographic characteristics, knowledge, attitude and practice regarding malaria prevention

In term of association between socio-demographic characteristics and malaria prevention, we found that three variable of socio-demographic characteristics were significantly associated which are gender ($p = 0.017$), occupation ($p < 1.001$) and total family income per month ($p < 0.001$). Beside, there were another variable significantly associated, heard of malaria and practice (0.025).

From this study, a statistically significant association was shown between knowledge and material status ($p = 0.007$), education level ($p < 0.001$), occupation ($p < 0.001$), total family income per month ($p < 0.001$) and length of time stay ($p < 0.001$).

According to attitude, there was significant association showed between education level ($p = 0.020$) occupation ($p < 0.001$), total family income per month ($p < 0.001$) and length of time stay ($p = 0.002$).

In this study, there was high significant association between knowledge and attitude, knowledge and practice, attitude and practice ($p < 0.001$ each).

5.3 Recommendations

Based on the findings of this study, the following issues should be considered for improving the malaria prevention and control program.

1. Enhancement of people's knowledge on malaria prevention is still needed under health education program even though it was not found statistically association with malaria prevention. Health education program should emphasize especially on:

- Malaria vector
- Malaria transmission
- Malaria symptom
- Malaria prevention

In addition, information about drug also should be provided and explained in detail what could happen if the medication is not take completely; for example, drug resistant. However, base on this study, the current or existed health education program needs to be adjusted or modified in term of teaching procedure, teaching method, intervention's activities and planning.

2. A number of respondents did not always use mosquito nets or use impregnated bed nets or use mosquito repellent and use anti-mosquito spray, because of financial problem and insufficient of material. Therefore, making mosquito

nets sufficient to all family members and mosquito repellent and spray available should be carried out.

The threat posed by malaria was assessed as more severe by users of ITNs. Information campaigns should aim to include messages relating to the severity of malaria as well as personal susceptibility to the disease. In particular, the increased threat of malaria to children aged under 5 and pregnant women should be emphasised, and ITN use among these populations particularly encouraged.

3. A simple practice should be introduced and encouraged such as:

- Clearing dark corner in the house
- Using mosquito net when going to and working at the coffee field or forest should focus on the importance of consistent use of ITNs, including when traveling away from home in malaria-prone areas.
- Encouraging agriculturist (farmer) to use mosquito net regularly in the coffee field or forest.
- Using mosquito coil and repellent
- Wearing the long-sleeves cloth when going to and working at the coffee field or forest.

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ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย



APPENDICES

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

APPENDIX A : Questionnaires (English Version)

Assessment of Knowledge, Attitude, and Practice regarding malaria prevention toward population in paksong district, Champassack province, Lao PDR

Code No. _____ Interviewer: _____ Date of interview ____/____/____

1) Section A: General Characteristic (4 minutes)

1. How old are you? _____ years
 2. What is your gender?

<input type="checkbox"/> 1. Male	<input type="checkbox"/> 2. Female
----------------------------------	------------------------------------
 3. Are you currently?

<input type="checkbox"/> 1. Single	<input type="checkbox"/> 2. Divorced	<input type="checkbox"/> 3. Married
<input type="checkbox"/> 4. Widowed	<input type="checkbox"/> 5. Separated	
 4. What is your education?

<input type="checkbox"/> 1. Ever attend school	<input type="checkbox"/> 2. High school	<input type="checkbox"/> 3. Primary school
<input type="checkbox"/> 4. College/university	<input type="checkbox"/> 5. Secondary school	<input type="checkbox"/> 6. Other (Please specify)...
 5. What is your current occupation?

<input type="checkbox"/> 1. Housewife	<input type="checkbox"/> 6. Teacher
<input type="checkbox"/> 2. Salesman	<input type="checkbox"/> 7. Daily wage
<input type="checkbox"/> 3. Civil of office	<input type="checkbox"/> 8. Animal husbandry
<input type="checkbox"/> 4. Agriculturist	<input type="checkbox"/> 9. Other (Please specify).....
<input type="checkbox"/> 5. Health personnel	
 6. What is your average family income? (Kip/month/household)
About..... Kip/month
 7. How long have you been here? (Paksong district)

<input type="checkbox"/> 1. one - two years
<input type="checkbox"/> 2. Three - five years
<input type="checkbox"/> More than 5 years
-

2) Section B: Basic knowledge about malaria (5 minutes)

No.	Questions	Yes	No	Don't know
1.	Have you ever heard of malaria?	[1]	[2]	[3]
2.	Vector which can transmit malaria to human			
2.1	Rat	[1]	[2]	[3]
2.2	Dog	[1]	[2]	[3]
2.3	Mosquito	[1]	[2]	[3]
2.4	Fly	[1]	[2]	[3]
2.5	Cockroach	[1]	[2]	[3]
3.	Malaria can transmit to human by			
3.1.	Drinking contaminated water	[1]	[2]	[3]
3.2.	Eating contaminated food	[1]	[2]	[3]
3.3.	Close contact with malaria patient	[1]	[2]	[3]
3.4.	The bite of malaria infected mosquito	[1]	[2]	[3]
4.	Symptoms of malaria			
4.1.	Fever	[1]	[2]	[3]
4.2.	Headache	[1]	[2]	[3]
4.3.	Chill	[1]	[2]	[3]
4.4.	Sweating	[1]	[2]	[3]
4.5.	Vomiting	[1]	[2]	[3]
4.6.	Abdominal pain	[1]	[2]	[3]
4.7.	Itching	[1]	[2]	[3]
5.	Way to prevent and control malaria			
5.1.	Wearing long sleeve cloth	[1]	[2]	[3]
5.2.	Sleep in bed nets	[1]	[2]	[3]
5.3.	Using ITNs	[1]	[2]	[3]
5.4.	Taking anti-malaria before going to forest	[1]	[2]	[3]
5.5.	Emptying and filling the retain water	[1]	[2]	[3]
5.6.	Trimming bushes around the house	[1]	[2]	[3]
5.7.	Clean dark corner in the house	[1]	[2]	[3]
5.8.	Insecticide spray	[1]	[2]	[3]
5.9.	Taking prophylaxis	[1]	[2]	[3]
5.10.	Making fire and smoke	[1]	[2]	[3]
6.	Feeding time of malaria mosquito			
6.1.	Day time	[1]	[2]	[3]
6.2.	Night time	[1]	[2]	[3]
6.3.	Both of them (day time and night time)	[1]	[2]	[3]
7.	Breeding site of mosquito			
7.1.	Pond or lake	[1]	[2]	[3]
7.2.	Stagnant water	[1]	[2]	[3]
7.3.	Canal	[1]	[2]	[3]
7.4.	Dry and clean place	[1]	[2]	[3]
8.	Resting place of malaria mosquito			
8.1.	Bushes	[1]	[2]	[3]
8.2.	Domestic animal shelters	[1]	[2]	[3]
8.3.	Tropic forest	[1]	[2]	[3]
8.4.	Dark corner in the house	[1]	[2]	[3]
8.5.	Open space where sunlight reach	[1]	[2]	[3]

3) Section C: Source of information about malaria (5 minutes)

1. Have you ever received or heard any information about malaria?
 - 1. Yes
 - 2. No (*if No, please skip to question 3*)

 2. Which of the following source have you ever received the information about malaria? (can be answered more than one)
 - 1. Hospital
 - 2. Health center
 - 3. Home (family member)
 - 4. Community head leader
 - 5. Neighbor
 - 6. Drug hawker
 - 7. Tradition health
 - 8. Village health worker
 - 9. Other (please specify) _____

 3. Which media have you ever received the information about malaria?
 - 1. Radio
 - 2. Television
 - 3. Video compact disc
 - 4. Newspaper
 - 5. Magazine
 - 6. Poster
 - 7. Other (please specify) _____

 4. Have any of your family members suffered from malaria?
 - 1. Yes
 - 2. No (*if No, please skip to question 5*)

 5. When you got malaria, did you receive treatment for it?
 - 1. Yes
 - 2. No (*if No, please skip to question section D*)
 - 3. Do not know (*if No, please skip to question section D*)

 6. Which source of health care you first seeking for treatment?
 - 1. Hospital
 - 2. Health center
 - 3. Home (family member)
 - 4. Community head leader
 - 5. Neighbor
 - 6. Drug hawker
 - 7. Tradition health
 - 8. Village health worker
 - 9. Other (please specify) _____
-

4) Section D: Attitude toward malaria(6 minutes)

No.	Questions	Strongly				Strongly disagree
		Agree	Agree	Neutral	Disagree	
1.	I think malaria is serious and sometimes life-threatening disease	[1]	[2]	[3]	[4]	[5]
2.	Malaria can be transmitted directly from person to person like common cold	[1]	[2]	[3]	[4]	[5]
3.	I believe that if malaria not treated promptly, it can quickly become life-threatening	[1]	[2]	[3]	[4]	[5]
4.	I think the best way to prevent myself from getting malaria is to keep myself from mosquito bite	[1]	[2]	[3]	[4]	[5]
5.	I am sure that anyone can get malaria	[1]	[2]	[3]	[4]	[5]
6.	In my opinion, once people get malaria, it can not be re-infected	[1]	[2]	[3]	[4]	[5]
7.	I believe sleep in bed net during night time Is once way to prevent myself from getting malaria	[1]	[2]	[3]	[4]	[5]
8.	I think, I can treat myself if got malaria	[1]	[2]	[3]	[4]	[5]
9.	In my idea only children and pregnant woman is at risk of malaria.	[1]	[2]	[3]	[4]	[5]
10.	I think once can recover from malaria spontaneously with out any treatment	[1]	[2]	[3]	[4]	[5]
11.	My idea, if someone got malaria people should avoid having close contact with him/her	[1]	[2]	[3]	[4]	[5]
12.	I think, I should go to the hospital and have my blood test immediately as soon, I suspect that, I have suffered from malaria	[1]	[2]	[3]	[4]	[5]
13.	I might be in greater risk of getting malaria if I work and sleep overnight in the forest	[1]	[2]	[3]	[4]	[5]
14.	In my opinion, I can stop the medicine as soon as the symptom is disappeared.	[1]	[2]	[3]	[4]	[5]
15.	I think it is dangerous when the medicine is not taken completely.	[1]	[2]	[3]	[4]	[5]
16.	I will seek for an advice or treatment when I get malaria	[1]	[2]	[3]	[4]	[5]
17.	I can buy anti-malaria drugs from drug store to treat myself, when I get malaria	[1]	[2]	[3]	[4]	[5]
18.	In my opinion, it is very important to check for an expired date of the drug before taking it.	[1]	[2]	[3]	[4]	[5]

5) Section E: Practice regards malaria prevention (6 minutes)

No.	Questions	Always	Sometime	Never
1.	How often do you sleep in mosquito net?	[1]	[2]	[3]
2.	How often do you sleep in mosquito net, when you sleep at your coffee field/forest	[1]	[2]	[3]
3.	How often do you check for mosquito net whether it has a hole?	[1]	[2]	[3]
4.	How often do you immediately repair mosquito net once you find out of hole?	[1]	[2]	[3]
5.	How often do you using insecticide treated bed nets?	[1]	[2]	[3]
6.	How often does all members in your household sleep in the net?	[1]	[2]	[3]
7.	How often do you use repellent coil at night time?	[1]	[2]	[3]
8.	How often do you use repellent yourself from mosquito bite?	[1]	[2]	[3]
9.	How often do you use indoor anti-mosquito spray in your house	[1]	[2]	[3]
10.	How often do you use outdoor anti-mosquito spray in your house	[1]	[2]	[3]
11.	How often do you wear long-sleeve cloth when you work at night time	[1]	[2]	[3]
12.	How often do you clean the bushes around your house?	[1]	[2]	[3]
13.	How often do you clean the stagnant water near your house?	[1]	[2]	[3]
14.	How often do you clear the dark corner in your house?	[1]	[2]	[3]
15.	How often do you go to the coffee field or forest?	[1]	[2]	[3]
16.	How often do you take anti-malaria drugs before going to the coffee field or forest?	[1]	[2]	[3]
17.	How often do you go to health services when you got sick?	[1]	[2]	[3]
18.	Do you have got mosquito nets in your house? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No(<i>if No, please skip to question section F</i>)			
19.	The bed net is enough for your family member? <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No			

(6) Section F: Questionnaire for those who ever suffered from malaria**(4 minutes)**

1. Have you ever got malaria?
 - 1. Yes
 - 2. No (*if No, please skip all questions*)

 2. If have got malaria, how many times?
 - 1. one time
 - 2. two times
 - 3. three times
 - 4. four times
 - 5. five times

 3. How did you have malaria? _____

 4. How did you know that you get malaria? _____

 5. Did you treatment for malaria?
 - 1. Yes
 - 2. No (*if No, please skip all questions*)

 6. Where did you receive drugs?
 - 1. Hospital
 - 2. Health center
 - 3. Home (family member)
 - 4. Community head leader
 - 5. Neighbor
 - 6. Drug hawker
 - 7. Tradition health
 - 8. Village health worker
 - 9. Other (please specify) _____

 7. How many days did you cover?
 - 1. less than 5 days
 - 2. About 6 – 10 days
 - 3. more than 11 days

 8. Did you stop drug as soon as symptom had disappeared?
 - 1. Yes
 - 2. No (take more drugs following doctor)
-

APPENDIX B : Questionnaires (Laos Version)

ແບບສອບຖາມ

ການປະເມີນຄວາມຮູ້, ທັດສະນະຄະຕິ ແລະການປະຕິບັດໃນການປ້ອງກັນພະຍາດໄຂ້ຍູງຂອງ
ປະຊາຊົນໃນເຂດ ເມືອງປາກຊ່ອງ ແຂວງຈໍາປາສັກ ປະເທດ ສ ປ ປ ລາວ

ລະຫັດຜູ້ຖືກສຳພາດເລກທີ.....ຊື່ຜູ້ສຳພາດ.....ວັນທີສຳພາດ...../...../.....

1) ພາກທີ ກ: ສະພາບທົ່ວໄປ (4 ນາທີ)

1. ເຈົ້າມີອາຍຸຈັກປີແລ້ວ (ຂອງຜູ້ຖືກສຳພາດ)?ປີ
2. ເຈົ້າເປັນຄົນເພດໃດ?

<input type="checkbox"/> 1. ຊາຍ	<input type="checkbox"/> 2. ຍິງ
---------------------------------	---------------------------------
3. ເຈົ້າມີສະຖານະໃດໃນປະຈຸບັນ?

<input type="checkbox"/> 1. ໂສດ	<input type="checkbox"/> 2. ຢ່າຮ້າງ
<input type="checkbox"/> 3. ແຕ່ງງານ	<input type="checkbox"/> 4. ໝ້າຍ
<input type="checkbox"/> 5. ແຍກກັນຢູ່	
4. ເຈົ້າມີລະດັບການສຶກສາຂັ້ນໃດ?

<input type="checkbox"/> 1. ບໍ່ເຄີຍຮຽນໜັງສື	<input type="checkbox"/> 2. ຈົບມັດທະຍົມປາຍ
<input type="checkbox"/> 3. ຈົບປະຖົມ	<input type="checkbox"/> 4. ຈົບວິທະຍາໄລ/ມະຫາວິທະຍາໄລ
<input type="checkbox"/> 5. ຈົບມັດທະຍົມຕົ້ນ	<input type="checkbox"/> 6. ອື່ນໆ (ບອກແຈ້ງ.....)
5. ເຈົ້າມີອາຊີບຫຍັງປະຈຸບັນ ?

<input type="checkbox"/> 1. ແມ່ບ້ານ	<input type="checkbox"/> 6. ຄູສອນ
<input type="checkbox"/> 2. ຄົນຂາຍເຄີ່ງ	<input type="checkbox"/> 7. ຮັບຈ້າງລາຍວັນ
<input type="checkbox"/> 3. ພະນັກງານຫ້ອງການ	<input type="checkbox"/> 8. ຄົນລ້ຽງສັດ
<input type="checkbox"/> 4. ທຳການກະເສດ	<input type="checkbox"/> 9. ອື່ນໆ (ບອກແຈ້ງ.....)
<input type="checkbox"/> 5. ພະນັກງານສາທາລະນະສຸກ	
6. ລາຍຮັບຂອງຄົວເຮືອນເຈົ້າມີຫຼາຍປານໃດ? (ກີບ/ເດືອນ/ຫຼັງຄາເຮືອນ)

ປະມານ.....ກີບ/ເດືອນ
7. ເຈົ້າໄດ້ມາຢູ່ທີ່ບ້ານນີ້ (ເມືອງ ປາກຊ່ອງ) ຈັກປີແລ້ວ ?

<input type="checkbox"/> 1. ໜຶ່ງ ຫາ ສອງປີ	<input type="checkbox"/> 2. ສາມ ຫາ ຫ້າປີ	<input type="checkbox"/> 3. ຫຼາຍກວ່າຫ້າປີ
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2) ພາກ ຂ: ພື້ນຖານຄວາມຮູ້ກ່ຽວກັບພະຍາດໄຂ້ຍູງ (5 ນາທີ)

ເບີ	ຄຳຖາມ	ຖືກຕ້ອງ	ບໍ່ຖືກຕ້ອງ	ບໍ່ຮູ້
1.	ເຈົ້າເຄີຍໄດ້ຍິນ/ໄດ້ຟັງກ່ຽວກັບພະຍາດໄຂ້ຍູງບໍ່?	[1]	[2]	[3]
2.	ສິ່ງ (ໂຕ) ທີ່ນຳເອົາເຊື້ອພະຍາດໄຂ້ຍູງເຂົ້າສູ່ຄົນຄື			
2.1	ໝູ	[1]	[2]	[3]
2.2	ໝາ	[1]	[2]	[3]
2.3	ຍູງ	[1]	[2]	[3]
2.4	ແມງວັນ	[1]	[2]	[3]
2.5	ແມງສາບ	[1]	[2]	[3]
3.	ພະຍາດໄຂ້ຍູງສາມາດສົ່ງເຂົ້າສູ່ຄົນດ້ວຍວິທີ:			
3.1.	ດິ່ມນ້ຳບໍ່ສະອາດ	[1]	[2]	[3]
3.2.	ກິນອາຫານບໍ່ສະອາດ/ບໍ່ສຸກ	[1]	[2]	[3]
3.3.	ສຳພັດ (ຈັບບາຍ) ຄົນທີ່ເປັນໄຂ້ຍູງ	[1]	[2]	[3]
3.4.	ຍູງທີ່ມີເຊື້ອພະຍາດໄຂ້ຍູງກັດເລກຄົນດີ	[1]	[2]	[3]
4.	ອາການຂອງຄົນທີ່ເປັນພະຍາດໄຂ້ຍູງມີ:			
4.1.	ໄຂ້	[1]	[2]	[3]
4.2.	ເຈັບຫົວ	[1]	[2]	[3]
4.3.	ໜາວ-ສົ້ນ	[1]	[2]	[3]
4.4.	ເຫ້ອອອກ	[1]	[2]	[3]
4.5.	ຮາກ	[1]	[2]	[3]
4.6.	ເຈັບຫ້ອງ	[1]	[2]	[3]
4.7.	ຢາກດິ່ມນ້ຳ	[1]	[2]	[3]
5.	ວິທີການປ້ອງກັນ ແລະຄວບຄຸມພະຍາດໄຂ້ຍູງຄື:			
5.1.	ນຸ່ງໂສ້ງ-ເສື້ອຂາ ແລະແຂນຍາວ	[1]	[2]	[3]
5.2.	ນອນໃນມັງ	[1]	[2]	[3]
5.3.	ນອນໃນມັງຍ້ອມຢາ	[1]	[2]	[3]
5.4.	ກິນຢາປ້ອງກັນໄຂ້ຍູງກ່ອນເຂົ້າໄປໃນປ່າດົງ	[1]	[2]	[3]
5.5.	ກຳຈັດ ຫຼື ປົກປິດພາຊະນະທີ່ບັນຈຸນ້ຳ	[1]	[2]	[3]
5.6.	ເກັບມັງນສິ່ງທີ່ບໍ່ນຳໃຊ້ແຕ່ຊະຊາຍຢູ່ອ້ອມແອ້ມເຮືອນ	[1]	[2]	[3]
5.7.	ອະນາໄມຕາມແຈເຮືອນບ່ອນທີ່ມີດ	[1]	[2]	[3]
5.8.	ຊີດຢາຂ້າຍູງ	[1]	[2]	[3]
5.9.	ປ້ອງກັນບໍ່ໃຫ້ຍູງກັດຕອດ	[1]	[2]	[3]
5.10.	ດັງໄຟເພື່ອໃຫ້ມີແສງສະຫວ່າງ ແລະຄວັນ	[1]	[2]	[3]
6.	ຍູງທີ່ເປັນຕົວກາງນຳເຊື້ອໄຂ້ຍູງອອກຫາກິນເວລາ:			
6.1.	ຍາມກາງເວັນ	[1]	[2]	[3]
6.2.	ຍາມກາງຄືນ	[1]	[2]	[3]

4) ພາກ ງ: ທັດສະນະຄະຕິຕໍ່ພະຍາດໄຂ້ຍູງ (6 ນາທີ)

ເບີ	ຄຳຖາມ	ເຫັນດ້ວຍ			ບໍ່ເຫັນດ້ວຍ	
		ຢ່າງສູງ	ເຫັນດ້ວຍ	ເປັນກາງ	ບໍ່ເຫັນດ້ວຍ	ຢ່າງສູງ
1.	ຂ້ອຍຄິດວ່າໄຂ້ຍູງເປັນພະຍາດທີ່ອັນຕະລາຍ ແລະ ມັນໄດ້ຄຸກຄາມຕໍ່ຊີວິດຂອງຄົນເຮົາໃນປະຈຸບັນ	[1]	[2]	[3]	[4]	[5]
2.	ພະຍາດໄຂ້ຍູງສາມາດຕິດຕໍ່ໂດຍກົງຈາກຄົນໜຶ່ງ (ເປັນໄຂ້) ຫາອີກຄົນໜຶ່ງ (ຄົນດີ) ເໝືອນພະຍາດໄຂ້ຫວັດ	[1]	[2]	[3]	[4]	[5]
3.	ຂ້ອຍເຫັນດ້ວຍ, ຄົນເປັນໄຂ້ຍູງບໍ່ໄດ້ຮັບການປິ່ນປົວຢ່າງ ຖືກຕ້ອງ, ຫັນການສາມາດເຮັດໃຫ້ຄົນເສຍຊີວິດໄວວາ	[1]	[2]	[3]	[4]	[5]
4.	ຂ້ອຍຄິດວ່າວິທີປ້ອງກັນຕົນເອງຈາກການຕິດເຊື້ອໄຂ້ ຍູງທີ່ດີທີ່ສຸດແມ່ນການປ້ອງກັນບໍ່ໃຫ້ຍູງກັດຕອດ	[1]	[2]	[3]	[4]	[5]
5.	ຂ້ອຍໝັ້ນໄຈວ່າຄົນເຮົາທຸກຄົນສາມາດເປັນໄຂ້ຍູງໄດ້	[1]	[2]	[3]	[4]	[5]
6.	ໃນຄວາມຄິດຂອງຂ້ອຍ, ຄົນຜູ້ໜຶ່ງເປັນໄຂ້ຍູງ, ບໍ່ສາ ມາດປ້ອງກັນການຕິດເຊື້ອໄຂ້ຍູງເທື່ອໃໝ່ໄດ້	[1]	[2]	[3]	[4]	[5]
7.	ຂ້ອຍເຫັນດ້ວຍການນອນໃນມຸ້ງໃນຍາມກາງຄືນເປັນວິທີ ໜຶ່ງທີ່ສາມາດປ້ອງກັນຕົນເອງຈາກການເປັນໄຂ້ຍູງໄດ້	[1]	[2]	[3]	[4]	[5]
8.	ຂ້ອຍຄິດວ່າ, ຂ້ອຍສາມາດປິ່ນປົວໄຂ້ຍູງດ້ວຍຕົນເອງ	[1]	[2]	[3]	[4]	[5]
9.	ໃນຄວາມຄິດຂ້ອຍມີແຕ່ເດັກນ້ອຍ ແລະ ແມ່ມານ ເທົ່ານັ້ນທີ່ມີຄວາມອັນຕະລາຍຈາກພະຍາດໄຂ້ຍູງ	[1]	[2]	[3]	[4]	[5]
10.	ຂ້ອຍຄິດວ່າພະຍາດໄຂ້ຍູງສາມາດຈະເພີ່ມຄວາມຮ້າຍ ແຮງທັນທີຖ້າບໍ່ໄດ້ຮັບການປິ່ນປົວຢ່າງຖືກຕ້ອງ	[1]	[2]	[3]	[4]	[5]
11.	ໃນຄວາມຄິດຂອງຂ້ອຍຄວນຫຼີກລຽງການໄກ້ຊິດຫຼືສຳ ພັດໂດຍກົງກັບຜູ້ທີ່ເປັນໄຂ້ຍູງເພາະຢ້ານຕິດໄຂ້ຍູງ	[1]	[2]	[3]	[4]	[5]
12.	ຂ້ອຍຄິດວ່າ, ຂ້ອຍຕ້ອງໄປໂຮງໝໍ ແລະ ກວດເລືອດ ທັນທີຖ້າສົງໄສວ່າຕົນເອງອາດເປັນພະຍາດໄຂ້ຍູງ	[1]	[2]	[3]	[4]	[5]
13.	ຂ້ອຍອາດຈະມີອັດຕາສ່ຽງສູງຕໍ່ການເປັນໄຂ້ຍູງຖ້າຫາກ ຂ້ອຍເຮັດວຽກ ຫຼືນອນຢູ່ໃນປ່າດົງຕອນກາງຄືນ	[1]	[2]	[3]	[4]	[5]
14.	ໃນຈິດສຳນັກຂ້ອຍ, ຂ້ອຍສາມາດຢຸດການກິນຢາ ທັນທີຖ້າຫາກອາການໄຂ້ຍູງຫາຍຂາດໄປ	[1]	[2]	[3]	[4]	[5]
15.	ຂ້ອຍຄິດວ່າ, ມັນເປັນສິ່ງທີ່ບໍ່ດີເລີຍຖ້າຂ້ອຍບໍ່ກິນຢາຕາມ ຕາມກຳນົດທີ່ແພດບອກເຖິງວ່າອາການຈະເຊົາກໍ່ຕາມ	[1]	[2]	[3]	[4]	[5]
16.	ຂ້ອຍຕ້ອງໄປພົບແພດເພື່ອຂໍຄຳແນະນຳ ຫຼືຮັບການ ປິ່ນປົວເມື່ອຂ້ອຍເປັນພະຍາດໄຂ້ຍູງ	[1]	[2]	[3]	[4]	[5]
17.	ຂ້ອຍສາມາດຊື້ຢາປິ່ນປົວໄຂ້ຍູງຈາກຮ້ານຂາຍຢາເພື່ອ ປິ່ນປົວຂ້ອຍເອງເມື່ອຂ້ອຍເປັນພະຍາດໄຂ້ຍູງ	[1]	[2]	[3]	[4]	[5]
18.	ໃນຄວາມຄິດຂ້ອຍ, ການກວດສອບເບິ່ງວັນທີ່ເດືອນປີ ຂອງຢາທຸກຄັ້ງກ່ອນກິນຢາເປັນສິ່ງທີ່ຈຳເປັນອັນໜຶ່ງ	[1]	[2]	[3]	[4]	[5]

5) ພາກ ຈ: ພຶດຕິກຳຕໍ່ການປ້ອງກັນພະຍາດໄຂ້ຍຸງ (6 ນາທີ)

ເບີ ເຄີຍ	ຄຳຖາມ	ທຸກຄັ້ງ	ບາງເທື່ອ	ບໍ່
	1. ປົກກະຕິເຈົ້າໄດ້ນອນໃນມຸ້ງບໍ່ ?	[1]	[2]	[3]
	2. ເມື່ອເຈົ້າໄປນອນໃນປ່າດົງຫຼືສວນກາເຟເຈົ້າໄດ້ນອນນອນໃນມຸ້ງບໍ່ ?	[1]	[2]	[3]
	3. ເຈົ້າໄດ້ກວດເບິ່ງສະພາບ(ບ່ອນຂາດ)ຂອງມຸ້ງເລື້ອຍໆບໍ່ ?	[1]	[2]	[3]
	4. ເຈົ້າເຄີຍໄດ້ຫຍິບຫຼືຕາບມຸ້ງຂອງເຈົ້າບໍ່ເມື່ອມຸ້ງຂາດ	[1]	[2]	[3]
	5. ເຈົ້າໄດ້ຍ້ອມມຸ້ງດ້ຍນ້ຳຢາຂ້າຍຸງບໍ່ ?	[1]	[2]	[3]
	6. ຫົວທຸກຄົນໃນເຮືອນຂອງເຈົ້າໄດ້ນອນໃນມຸ້ງບໍ່ ?	[1]	[2]	[3]
	7. ໃນຕອນກາງຄືນເຈົ້າໄດ້ຈູດຢາຂ້າຍຸງບໍ່ ?	[1]	[2]	[3]
	8. ເຈົ້າເຄີຍໄດ້ປ້ອງກັນບໍ່ໃຫ້ຍຸງກັດຢູ່ບໍ່ ?	[1]	[2]	[3]
	9. ຢູ່ເຮືອນຂອງເຈົ້າເຈົ້າເຄີຍໄດ້ຊິດຢາຂ້າຍຸງບໍ່ ?	[1]	[2]	[3]
	10. ເຈົ້າເຄີຍໄດ້ຊິດຢາຂ້າຍຸງອ້ອມແອ້ມເຮືອນຂອງເຈົ້າບໍ່ ?	[1]	[2]	[3]
	11. ເມື່ອເຈົ້າໄດ້ວຽກຍາມກາງຄືນ, ເຈົ້າໄດ້ນຸ່ງສິ້ງ-ເສື້ອແຂນຍາວບໍ່ ?	[1]	[2]	[3]
	12. ເຈົ້າເຄີຍໄດ້ອານາໄມບໍລິເວນອ້ອມແອ້ມເຮືອນຊານເຈົ້າບໍ່ ?	[1]	[2]	[3]
	13. ເຈົ້າໄດ້ອານາໄມ(ຖິມ)ບ່ອນນ້ຳຂັງ(ບວກ,ໜອງ)ອ້ອມແອ້ມເຮືອນບໍ່ ?	[1]	[2]	[3]
	14. ເຈົ້າໄດ້ອະນາໄມຫຼືເກັບມ້ຽນບ່ອນມືດຕາມແຈເຮືອນເຈົ້າບໍ່ ?	[1]	[2]	[3]
	15. ເຈົ້າເຄີຍໄດ້ອອກໄປປ່າດົງ ຫຼືສວນກາເຟບໍ່ ?	[1]	[2]	[3]
	16. ເຈົ້າເຄີຍໄດ້ກິນຢາປິ່ນປົວໄຂ້ຍຸງອອກໄປປ່າດົງ ຫຼືສວນກາເຟບໍ່ ?	[1]	[2]	[3]
	17. ເຈົ້າໄດ້ໄປພິຍແພດຢູ່ສະຖານທີ່ກວດສຸຂະພາບບໍ່ເມື່ອເຈົ້າບໍ່ສະບາຍ? [1]	[1]	[2]	[3]

18. ຢູ່ເຮືອນຂອງເຈົ້າມີມຸ້ງບໍ່ ?

1. ມີ

2. ບໍ່ມີ(ຖ້າບໍ່ມີຂ້າມໄປຖາມຄຳຖາມຢູ່ພາກ ສ)

19. ມຸ້ງທີ່ເຈົ້າມີຢູ່ເຮືອນປະຈຸບັນພຽງພໍກັບສະມາຊິກໝົດທຸກຄົນບໍ່ ?

1. ພຽງພໍ

2. ບໍ່ພຽງພໍ

6) ພາກ ສ: ຄຳຖາມກ່ຽວກັບຜູ້ທີ່ເຄີຍເປັນໄຂ້ຍູງ (4 ນາທີ)

1. ເຈົ້າເຄີຍໄດ້ເປັນພະຍາດໄຂ້ຍູງບໍ່ ?
 - 1. ເຄີຍເປັນ
 - 2. ບໍ່ເຄີຍເປັນ (ຖ້າບໍ່ເຄີຍເປັນຊົນສຸດການສອບຖາມເລີຍ)
2. ຖ້າຫາກເຄີຍເປັນໄຂ້ຍູງ, ເຈົ້າເຄີຍເປັນຈັກເທື່ອມາແລ້ວ ?
 - 1. ໜຶ່ງເທື່ອ
 - 2. ສອງເທື່ອ
 - 3. ສາມເທື່ອ
 - 4. ສີ່ເທື່ອ
 - 5. ຫ້າເທື່ອ
3. ເຈົ້າຄິດວ່າເຈົ້າເປັນພະຍາດໄຂ້ຍູງດ້ວຍວິທີໃດ?

.....
4. ເຈົ້າຮູ້ໄດ້ແນວໃດວ່າເຈົ້າໄດ້ເປັນພະຍາດໄຂ້ຍູງ ?

.....
5. ເຈົ້າໄດ້ຮັບການປິ່ນປົວບໍ່ເມື່ອເຈົ້າເປັນໄຂ້ຍູງ ?
 - 1. ໄດ້ປິ່ນປົວ
 - 2. ບໍ່ໄດ້ຮັບການປິ່ນປົວ (ຖ້າບໍ່ໄດ້ປິ່ນປົວໝົດຄຳຖາມເລີຍ)
6. ສະຖານທີ່ໆເຈົ້າໄດ້ໄປຮັບຢາ ຫຼື ປິ່ນປົວພະຍາດໄຂ້ຍູງ ?
 - 1. ໂຮງໝໍ
 - 2. ສຸກສລາ
 - 3. ຢູ່ເຮືອນ (ຊື່ຢາມາກິນ)
 - 4. ນາຍບ້ານ
 - 5. ເພື່ອນບ້ານ/ພີ່ນ້ອງ
 - 6. ຄົນຂາຍຢາ
 - 7. ໝໍຢາພື້ນເມືອງ
 - 8. ອາສາສະໝັກບ້ານ
 - 9. ອື່ນໆ (ບອກແຈ້ງ.....)
7. ເຈົ້າໃຊ້ເວລາປິ່ນປົວພະຍາດໄຂ້ຍູງຈັກວັນ ?
 - 1. ນ້ອຍກ່ວາ 5 ວັນ
 - 2. ປະມານ 6 ຫາ 10 ວັນ
 - 3. ຫຼາຍກ່ວາ 11 ວັນ
8. ເຈົ້າຢຸດຕິການກິນຢາທັນທີບໍ່ເມື່ອອາການໄຂ້ຍູງຫາຍຂາດໄປ (ບໍ່ຄົບກຳນົດຕາມແພດສັ່ງ)?
 - 1. ຢຸດທັນທີ
 - 2. ບໍ່ຢຸ (ກິນຄົບຕາມແພດສັ່ງ)

APPENDIX C: Map of Lao PDR



Lao PDR:

- There are 17 Provinces, 142 districts, population 5.6 million
- The land area is 236,000 Km², The population density 20 persons/Km²
- There is multi-ethnic country consisting of 49 ethnic groups.
- Shares land boundaries with China, Myanmar, Thailand, Cambodia and Vietnam.

APPENDIX D: Household register form

No	Name	Sex	DOB or Age	¹ Relation to Head	² Marital Status	³ Ethnicity	⁴ Relation	Chronic Health Problem	Date of Death	Remarks
1										
2										
3										
4										
5										
6										
7										
8										
								Risk profile of household	Score if present	Score
1. Self, Wife, Husband, Child, Relative								At least 1 child < 1 year	1	
2. Married, Single, Separated, Window, Divorced								> 2 children < 5 years	1	
3. Lao loom, Laven, Lavear, Taoe, Katang, yahoern, Other								> 2 infant deaths in past 5 years	2	
4. Buddhist Christian, Islam, Other								Presence of communicable disease	1	
								Illiterate mother	2	
								Family member with disability	1	
								Improper/no use of latrine	1	
								New arrival (< 1 year)	1	
								Total		

Rating scale: Low risk Moderate risk High risk
0 – 3 4 – 6 > 7

APPENDIX E: Population register form

PAKSONG DISTRICT, CHAMPASACK PROVINCE, Lao PDR

Month:

Registered population

Zone/Villages	< 5 year		6 – 15 Years		16 – 24 Years		25 – 45 Years		46 – 60 Years		< 61 Years		< 61 years		Total Pop.		Total Pop.
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Villages register																	
Vill:																	
Vill:																	
Vill:																	
Vill:																	
Vill:																	
Vill:																	
Vill:																	
Vill:																	
Vill:																	
Total M/F																	
Total																	

ศูนย์วิทยบริการ
 จุฬาลงกรณ์มหาวิทยาลัย

CURRICULUMVITAE

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