MATERNAL KNOWLEDGE ATTITUDE AND PRACTICE OF PREVENTING DIARRHEA AMONG CHILDREN UNDER FIVE IN MIGRANTS IN MAE SOT DISTRICT TAK PROVINCE THAILAND

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A Thesis Submitted in Partial Fulfillment of the Requirements
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ความรู้ ทัศนคติ และพฤติกรรมในการป้องกันโรคอุจจาระร่วงในเด็กอายุน้อยกว่า 5 ปีของมารดาที่เป็นผู้อพยพในอำเภอแม่สอด จังหวัดตาก ประเทศไทย

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต
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Thesis Title	MATERNAL KNOWLEDGE ATTITUDE AND PRACTICE OF PREVENTING DIARRHEA AMONG CHILDREN UNDER FIVE IN MIGRANTS IN MAE SOT DISTRICT TAK PROVINCE THAILAND
By	Mr. Kaung Myat
Field of Study	Public Health
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ก่อง เมี๊ยท : ความรู้ ทัศนคติ และพฤติกรรมในการป้องกันโรคอุจจาระร่วงในเด็กอายุน้อยกว่า 5 ปีของมารดาที่เป็นผู้อพยพในอำเภอแม่สอด จังหวัดตาก ประเทศไทย. (MATERNAL KNOWLEDGE ATTITUDE AND PRACTICE OF PREVENTING DIARRHEA AMONG CHILDREN UNDER FIVE IN MIGRANTS IN MAE SOT DISTRICT TAK PROVINCE THAILAND) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ดร. ณัฏฐา ฐานีพานิชสกุล, หน้า.

การศึกษาวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่ส่งผลต่อพฤติกรรมของมารดาในการป้องกันโรคท้องร่วงในเด็กอายุน้อยกว่า 5 ปี อำเภอแม่สอด จังหวัดตาก ประเทศไทย การศึกษาครั้งนี้ได้ทำการศึกษาระหว่างเดือนมีนาคม ถึงเมษายน 2557 ในมารดาผู้อพยพที่อาศัยอยู่ในหมู่บ้านหัวไฟ ตำบลพระธาตุผาแดง อำเภอแม่สอด โดยใช้แบบสอบถามที่มีค่าความเที่ยงเท่ากับ 0.87 จากการศึกษาพบว่า มารดามีอายุระหว่าง 19-48 ปี มีสัญชาติพม่า 82 % จบการศึกษาชั้นประถมศึกษาคิดเป็น 46.4 % และไม่มีใบอนุญาตทำงานสำหรับคนต่างด้าวคิดเป็น 78.6% มีรายได้โดยเฉลี่ย 5030 บาทต่อเดือน การศึกษาครั้งนี้พบว่าผู้เข้าร่วมวิจัยจะคัดเลือกจากการเกิดโรคท้องร่วงใน 2 เดือนที่ผ่านมา ผู้เข้าร่วมวิจัยอาศัยอยู่ในประเทศไทยมากกว่า 2 ปีคิดเป็น 89.3 % จากการศึกษาความรู้ ทัศนคติ และพฤติกรรมของมารดา พบว่ามารดาส่วนใหญ่มีความรู้เพื่อป้องกันการเกิดโรคท้องร่วงในระดับดี (85.7%) ทัศนคติอยู่ในระดับปานกลาง (87.5%) และมีพฤติกรรมอยู่ในระดับปานกลาง (61.6%) และจากการทดสอบความสัมพันธ์ระหว่างลักษณะทางประชากรศาสตร์ และความรู้ ทัศนคติและพฤติกรรม พบว่า พฤติกรรมของการป้องกันโรคท้องร่วงมีความสัมพันธ์กับเชื้อชาติ (P=0.037) สถานภาพสมรส (P=0.001) ระดับการศึกษา (P=0.008) และความเพียงพอของรายได้ในครอบครัว (P=0.012).

สาขาวิชา สาธารณสุขศาสตร์ ลายมือชื่อนิสิต .....

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KAUNG MYAT: MATERNAL KNOWLEDGE ATTITUDE AND PRACTICE OF PREVENTING DIARRHEA AMONG CHILDREN UNDER FIVE IN MIGRANTS IN MAE SOT DISTRICT TAK PROVINCE THAILAND. ADVISOR: NUTTA TANEEPANICHSKUL, Ph.D., pp.

This research was a survey with the objectives to study the factors influencing the maternal practice of Diarrhea prevention in their under five children, Mae Sot, Tak province, Thailand. Data collection was between March to April 2014. The total 112 samples were both illegal and legal migrants living in Hua Fai village, Phatadpadaeng sub-district, Mae Sot District. The research tool was an interview form in 4 parts. The overall reliability value was 0.87. Statistics in use by IBM SPSS version 20 were frequency, percentage, mean, standard deviation and chi-square test.

The results revealed that most of the respondents were mothers aged between 19-48 years old (46.4%). They were married (91.1%), Burma (82%), did not have work permit (78.6%), finished primary school (46.4%), and were housewives (72.3%). Average number of their family was 3. Average income was 5030 bath monthly. Respondents were chosen if they had a diarrhea history in the past two months. Most of the respondents had longer duration of stay in Thailand over two years (89.3%). The respondents had their knowledge level on prevention of diarrhea for 85.7% (good level), had their attitude level on prevention of diarrhea for 87.5% (intermediate level) and their practice on prevention of diarrhea for 61.6% (intermediate level). Demographic characteristics which were found to be significant with the practice of prevention of diarrhea were ethnicity (P=0.037), Marital Status (P=0.001), educational status (P=0.008) and enough income (P=0.012). The Spearman's correlation test was used to investigate the relationship between the demographic variables, knowledge, attitude and practice of diarrhea prevention. There were weak positive correlations between knowledge and prevention practice of diarrhea as well as between attitude and prevention practice of diarrhea. The findings of the study indicate that if people are supported with sufficient knowledge through various channels, they will come to have good practice in preventing diarrhea in children under five years.

Field of Study: Public Health Student's Signature .....

Academic Year: 2013 Advisor's Signature .....

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CHAPTER I
INTRODUCTION

1.1 Background

Diarrhea, a symptom of gastrointestinal tract infection, can be caused by a various kind of pathogens, such as bacteria, virus and protozoa. It is common in all ages in the world as one of the communicable diseases. Each year, 1 to 2.5 billion people are infected and 1.5 million child deaths are happening (Khalili, Mirshahi, Zarghami, Rajabnia, & Farahmand, 2013) and it is noted as the second leading cause of mortality in children under five in the developing countries with nearly 90% in South Asia and Sub-Saharan Africa (World Health Organization, 2013).

Children are especially at high risk because of their poor resistance and they are getting more contact with contaminated things through dirty mother or playing something like water and ground. Children with inadequate nutritional support and those living in poor environmental status are more prone to get severe diarrhea than normal children. They also have more risk than adolescents to acquire fatal dehydration as water involves as a bigger part of children's body-weight. The fact is that higher metabolic rates in under-five children make their kidneys consume more water compared to older children (World Health Organization(WHO) United Nations Children's Fund (UNICEF), 2009).

The answer to dealing with Diarrhea does not require great procedures in technology as safe guidelines have been proven already. Mortality of children is high because services provided are inaccessible and those with enormous risk are

out of coverage. In 1997, one million cases of diarrhea in the 60 million Thai populations are reported by the Ministry of Public Health of Thailand with 40% occurring in children under five years of age (Intusoma, Sornsrivichai, Jiraphongsa, & Varavithaya, 2008).

There are around 1 billion migrants in the world in which 214 million are international migrants and 740 million are internal ((UNICEF), 2012). Flows of these migrants become a huge size of populations composed of workers, refugees, students, unregistered migrants and others with different levels of health status, needs and vulnerability.

1.2.Rationale

Migrant children situation is different from that of children living in the refugee camps. The food supply for the latter is regular; access to health care is free; immunization coverage is excellent. Success in reducing malnutrition among children depends on the sustainability of the intervention and whether the children are likely to get benefit from it for an adequate length of time; both criteria are presently unmet for this particular population and need further consideration. Non-Government Organizations in collaborating with heath agencies supervise and report annual surveys mostly in children less than 5 years in all refugees' camps along the Thai-Myanmar Border. So, there are just a few formal statistics regarding the infectious diseases and nutritional status of migrant children under five living in the border and Mae Sot (Carrara et al., 2013).

Migrant parents find it difficult to obtain birth-certificates for their children because they lack proof of residence, which is essential for issuing birth certificates. Owing to their mobile status, infants often miss out on immunization,

growth monitoring and regular health checkups. Risks of malnutrition, morbidity and mortality among migrant children remain high ((UNICEF), 2012).

In Mae Sot, more than 300,000 migrants are living and scattered into small groupings. Accessing to clinic or hospital seems to be very limited for several reasons. Firstly, due to most of migrants are undocumented, they can't move freely around the city without ID card or passport from Thai government. When they get caught by Thai policeman, people should pay fine or at least give the officials bribe. Otherwise, they might be in trouble. Secondly, although they can go to clinic or hospital, the medical expenses are expensive to afford due to no health insurance. Last but not least, there is language barrier to migrants (Mun, 2011). There is a big village called Hua Fai in the Phatadpadaeng sub-district, south-east part of Mae-Sot town where more than 1,000 Myanmar migrants are living. After going as a visit with the help of Christian Youth Association, a small organization which is helping and taking care of street children, some conditions mentioned above are seen in that area. The people are staying hidden behind the native's compounds, big trees, big bushes and some even behind the waste dispose areas. Proportion of under- five children are around 10%, which is collected as a household survey during the visit. As their environment is mostly unsanitary due to the shifting movement from one place to another; their places are far away from the health care center and Mae Tao clinic; their availability of common water and presence of low educational status; their health statuses are poor and susceptible to infectious diseases.

1.3. Mae Sot and Maps of Thailand, Tak Province and Hua Fai Village

Mae Sot is a district in western Thailand that shares a border with Myanmar to the west. It is notable as a trade hub and for its substantial population of Myanmar migrants and refugees. The town is part of the larger Tak Province and is the main land gateway between Thailand and Myanmar. It has a population of 120,999 but with the presence of a large number of unregistered Myanmar migrants this is probably to be higher. The figures quoted for the number of migrant workers in the Mae Sot area range from between 150,000 to 300,000 with around 10% of these children ((Burma), 2009).

Phatadpadaeng is located in the south-east part of Mae sot town and it is one of the sub-districts in Mae Sot district. It has 7 villages including Hua Fai village. In Hua Fai village, there are 563 households where 765 males and 717 females are living (www.phatadpadaeng.org). Migrant population is mostly known as unregistered groups and one of the susceptible groups for communicable diseases (e.g. diarrhea) due to the unsafe and non-granted conditions. Actually, migrants are the ethnic minorities those who have shifted from mother land due to the domestic war. So, exact population of migrants is not available.

Figure 1.Map of Thailand and its ethnic groups (Ref: enwikipedia.org)

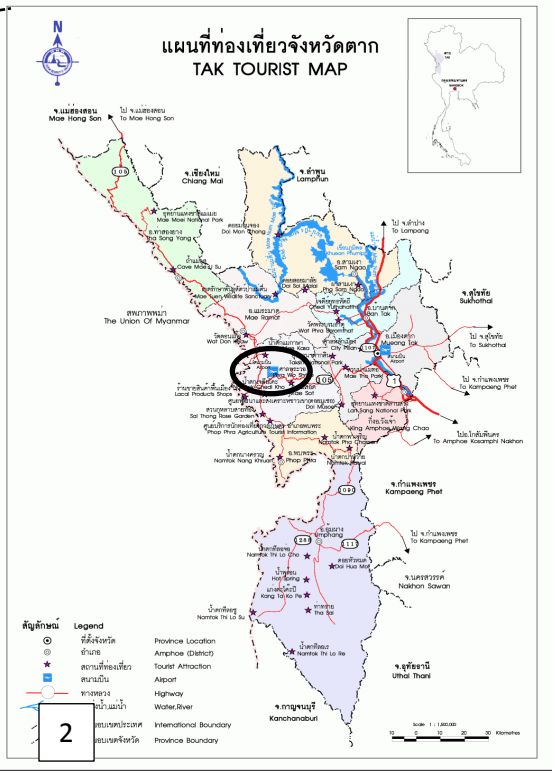


Figure 2.Tak province tourist map (Ref: mapofthailand.org)

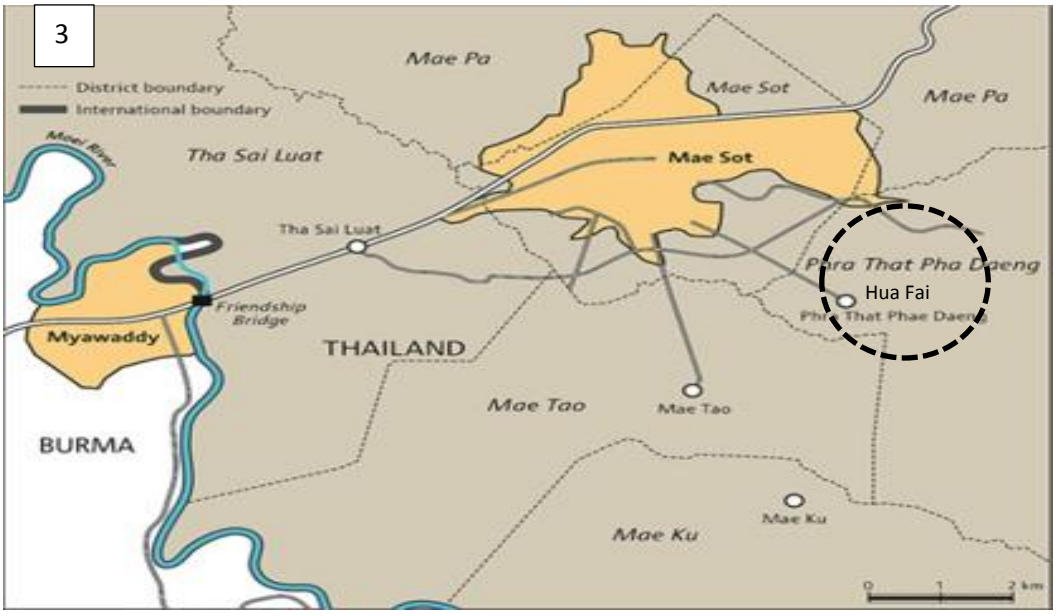


Figure 3. Map of Mae Sot, Phatadpadaeng and Hua Fai village (Ref: www.flickr.com)

1.4. Research Questions

1.4.1 What are the levels of maternal knowledge, attitude and practice of preventing Diarrhea in their under five children?

1.4.2 What are the factors associating the maternal practice of Diarrhea prevention in their under five children?

1.5. Research Hypothesis

1.5.1 There is an association between the level of maternal knowledge and the level of maternal attitude towards Diarrhea prevention in their under five_children.

1.5.2 There is an association between the level of maternal knowledge and attitude with practice regarding Diarrhea prevention in their under five children.

1.5.3 There is an association between the influencing factors and the maternal practice of Diarrhea prevention in their under five children.

1.6. General Objectives

- To study the factors associated with the maternal practice of Diarrhea prevention in their under five children, Mae Sot, Thailand.

1.7. Specific Objectives

- To describe the socio-demographic factors to diarrhea among the maternal and their under five children in Mae Sot, Thailand

- To indicate the level of maternal knowledge, attitude and practice of Diarrhea prevention in their under five children, Mae Sot, Thailand.

- To find the factors influencing the maternal practice of diarrhea prevention in their under five children, Mae Sot, Thailand.

1.8. Conceptual framework

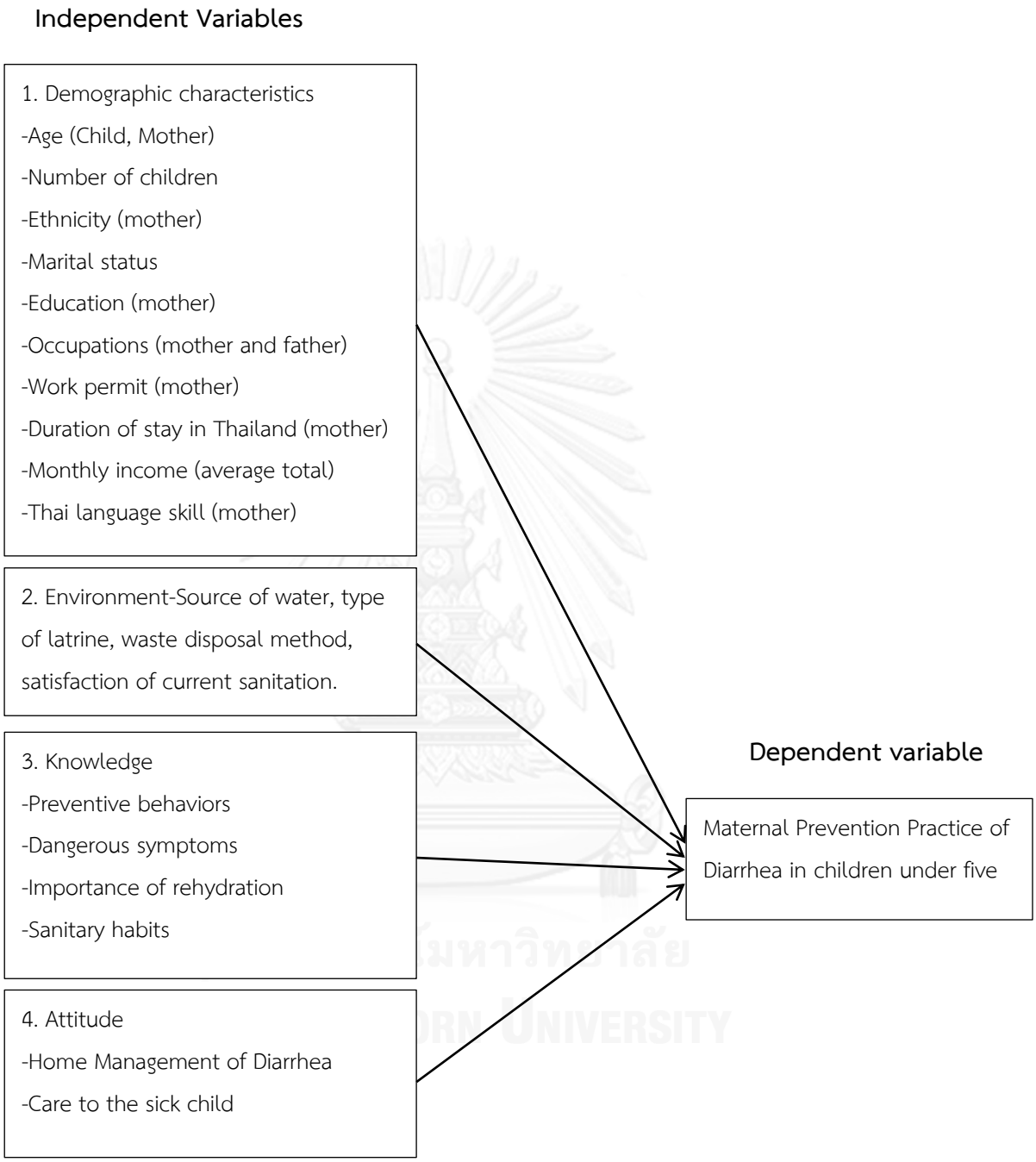


Table 1. Conceptual Framework

1.9. Operational definition

(a) Diarrhea

-Diarrhea happening in child population which is under five years old at the last completed birthday at the survey time. Here, all types of semi-solid or liquid form of diarrhea which are passing three or more times in a day are included.

(b)Age

-Two ages will be recorded. Ages refer to the last birthdays of mother and her youngest child which are already done at the time of study.

(c) Education

-Education refers to highest school grade of the respondents and it is divided into six standards; "Illiterate", "Primary school(Std 1^{st} – 4^{th}) ", "Middle School(Std 5^{th} – 8^{th})", High School (Std 9^{th} – 10^{th})", and 'Institute".

(d)Number of children

-It means the total number of children that the respondent mother has.

(e)Ethnicity

-It means the ethnicity of the respondent in her mother land. It is categorized into 5 ; Burma, Shan, Karen, Mon and others.

(f) Marital Status

-It refers to the present situation of marital status of the respondent. It is divided into 5; marriage, divorce, widowed, separated and others.

(g) Occupation

-It refers to the work of the husband of the respondent. It is separated into 5; officer, laborer, factory worker, construction worker and others.

(h) Duration of stay in Thailand

- It means that the total time that the respondent has been living in Thailand till now.

(i) Monthly income

-It refers to the total income of all the people living in the house of the respondent.

(j)Thai language skill

- Thai language proficiency of the respondent and it is categorized into 4; cannot speak Thai language, Can speak basic (few words) Thai Language, Can speak Thai language well but cannot read and write, Fluent in Thai Language.

(k)Work permit

-It refers to the legal documents which show the respondent is allowed to live and work in Thailand and Thai police cannot arrest them when carrying this.

(l) Preventive behaviors

- Behavior of the respondent mother that she practices to prevent diarrhea to her child. These may include hand washing with soap, using safe and clean water,

hygienic preparing and cooking food, hygienic feeding to the child and using sanitary latrine effectively and immunization to the child.

(m) Dangerous symptoms

- It refers to the symptoms due to dehydration resulted from diarrhea which is dangerous. Some symptoms that normal person should know are chosen in this section. These are varied according to the severity of diarrhea. Some of dangerous symptoms are restlessness or irritability, drinking eagerly or vomiting a lot, loose skin turgor, cold and clammy extremities, lack of urine output, depressed fontanels in infants and seizures.

(n) Importance of dehydration

- It refers to the principle to rehydrate the diarrhea child as water and electrolytes are driven out. Unless the child is rehydrated, it is life-threatening. It can either be oral or parenteral.

(o) Sanitary habits

- It indicates to the habits of respondent mother whether her behaviors are in accordance with hygiene or not. These include washing hand washing with soap, using safe and clean water, hygienic preparing and cooking food, hygienic feeding to the child and using sanitary latrine effectively. Environmental and household sanitation is also important.

(p)Feeding methods

- It refers to the practice of respondent mother the way she feeds the diarrhea child as well as for prevention of severity of diarrhea e.g.: necessary feeding with food and drinks which should be increased during and after episodes of diarrhea.

(q)Home management of diarrhea

- It refers to the attitude of mother whether she likes to treat her child in case of non-severe diarrhea with no dehydration. Home management can also be assumed as first aid to the diarrhea child not to happen severe diarrhea and its complications. Also, she has to notice the condition when further medication is needed to give or consult. Rehydration with oral rehydration salt solution in real practice is important.

(r) Care to the sick child

- It actually refers to the mother not to neglect the diarrhea child and to monitor carefully.

(s)Environment

-It refers to the conditions of environment whether it is hygienic or not. Drinking water source, waste disposal method, type of latrine, etc. are included.

(t)Maternal Prevention Practice of Diarrhea in children under five

It refers to behaviors of mothers or caregivers which are practiced to prevent diarrhea in their children. It includes 4 cleanliness which are (i)clean hands, (ii)clean food, (iii)clean water and (iv)clean latrine.

(i)Clean hands- Behavior of washing hands with soap, keeping clean and then feed the child. Hands are washed at the following 5 key times:

- Before Eating
- Before Feeding Children
- Before Food Serving/Handling
- After Using toilet
- After cleaning up a Child's Bottom (after defecation)

Hand washing technique includes all 5 of the following key elements:

- Uses water
- Washes both hands
- Uses ash, soap, or mud
- Rubs hands at least three times
- Hands are dried hygienically – by air-drying or using a clean rag
- Ash or Soap for hand washing is kept available in the household
- A Rag used exclusively for hand drying is kept available in the house (Bateman, Jahan, Brahman, Zeitlyn, & Laston, 1995)

(ii)Clean food -method of preparing hygienic food and covering food from flies.

- Food is kept covered
- Infants less than 6 months of age are exclusively breastfed
- Pond water is not added to food after cooking (Bateman et al., 1995)

(iii)Clean water –Usage of safe and clean water to drink and to prepare food. Stored drinking water is kept clean in the following ways:

- drinking water is stored in a container
- the container is kept covered with a lid
- the lid is kept clean
- the container is kept clean
- hands are kept out of contact with drinking water (Bateman et al., 1995)
- To be better or whenever necessary, the stored water for drinking purpose should be boiled or treated.

(iv)Clean latrine- Using sanitary latrine and maintaining it always clean. 15% of the world population still practice open defecation. The majority (71%) of those without sanitation live in rural areas, where 90% of all open defecation takes place (WHO, 2013).

- Latrine is maintained clean (inside and outside)
- Yard is kept clean and free of human feces and garbage
- All family members > 5 years of age defecate in a hygienic latrine
- Young children (3-5 years) defecate in a latrine or fixed place
- Children's feces are disposed of hygienically (Bateman et al., 1995)

CHAPTER II
LITERATURE REVIEW

2.1. Diarrhea

2.1.1. Diarrhea and its causes

Diarrhea is known as loose motion in which semi-solid or liquid or watery stools are passed three or more times in a day. Frequency of normal formed stools and loose, pasty stools in breast-fed babies are not assumed diarrhea (WHO). In reality, change in consistency and character is more important than number of output. Clinically, three types of diarrhea are as follows;

a) acute watery diarrhea – usually lasts for several hours and days, including cholera;
b) acute bloody diarrhea – known as dysentery;
c) persistent diarrhea – lasts more than 2 weeks

In developing countries, these three clinical types of diarrhea usually happen to children under five years old every year. Nutrition required for the child growth washes away after each stage. In this way, diarrhea becomes the major cause of malnutrition and these children are susceptible to get illness from diarrhea.

Table 2.Organisms causing diarrhea (K Park, 2011)

1.Viruses	**2.Bacteria**	3**.Others**
-Rotaviruses	-Campylobacter jejuni	-E. Histolytica
-Astroviruses	-Escherichia coli	-Giadia intestinalis
-Adenoviruses	-Shigella	-Trichuriasis
-Calciviruses	-Salmonella	-Cryptosporidium
-Coronaviruses	-Vibrio cholera	SPP
-Norwalk group viruses	-Vibrio parahaemolyticus	-Intestinal worms
	-Bacillus cereus	

Table 3.Pathogens frequently identified in children with acute diarrhea in treatment centers in developing counties (K Park, 2011)

	Pathogen	**% of cases**
Viruses	Rotavirus	15-25
Bacteria	Enterotoxigenic Escherichia coli	10-20
	Shigella	5-15
	Campylobacter jejuni	10-15
	Salmonella	5-10
	Enteropathogenic Escherichia coli	1-5
Protozoans	Cryptosporidium	5-15
No pathogen found	—	20-30

Dehydration is the most dangerous condition which follows severe diarrhea because large portions of water and electrolytes (Na+, Cl-, K+, bicarbonate) are depleted through defecation, urination, vomiting, sweating and breathing. Dehydration is life-threatening unless these lost are refilled.

The level of dehydration is divided into three stages;

1. Early dehydration: mild symptoms

2. Moderate dehydration: thirst, restless or irritable, skin pinch test (+).

3. Severe dehydration: more severe symptoms; shock with decreased level of alertness, no urine output, extremities become cold and shaking , a fast and thready pulse, low or un-recordable blood pressure, and pallor.

Causes

Infection: Diarrhea is a symptom of infections caused by a host of bacterial, viral and parasitic organisms, most of which are spread by feces-contaminated water. Infection is more common when there is a shortage of adequate sanitation and hygiene and safe water for drinking, cooking and cleaning. Rotavirus and Escherichia coli are the two most common etiological agents of diarrhea in developing countries.

Malnutrition: Children who die from diarrhea often suffer from underlying malnutrition, which makes them more vulnerable to diarrhea. Each diarrheal episode, in turn, makes their malnutrition even worse. Diarrhea is a leading cause of malnutrition in children under five years old.

Source: Water contaminated with human feces, for example, from sewage, septic tanks and latrines, is of particular concern. Animal feces also contain microorganisms that can cause diarrhea.

Other causes: Diarrheal disease can also spread from person-to-person, aggravated by poor personal hygiene. Food is another major cause of diarrhea when it is prepared or stored in unhygienic conditions. Water can contaminate food during irrigation. Fish and seafood from polluted water may also contribute to the disease.

Prevention

Key measures to prevent diarrhea include: (1) access to safe drinking-water; (2)use of improved sanitation;(3) hand washing with soap;(4) exclusive breastfeeding for the first six months of life;(5) good personal and food hygiene;(6)health education about how infections spread; and(7)rotavirus vaccination.

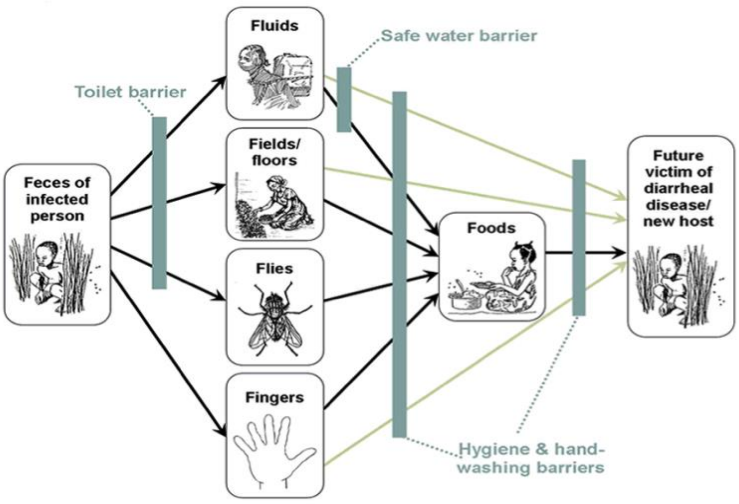


Figure 4.Transmission of Diarrhea and prevention barriers (ref: www.water1st.org)

2.1.2. World's Situation

The world has created great achievements in child survival over the past two decades, but progress has never been even both across and within countries. Since 1990, child mortality has become increasingly concentrated in the world's poorest regions: sub-Saharan Africa and South Asia. Within most countries, the poorest and most deprived children are more likely to die before their fifth birthday. Limited data suggests that even in countries where the national child mortality rate has declined since 1990, the survival gap between the poorest and better-off children has widened in many cases (World heakth organization (WHO) United Nations Children's Fund (UNICEF), 2012).

The impacts of different health conditions vary by age and sex as a result of both biological and behavioral factors that determine susceptibility to certain illness or injuries. Among children under five, communicable diseases accounted for the overwhelming majority of deaths (89.2%), while non-communicable diseases and causes of accidents and injuries accounted for 7.4% and 3.4%, respectively, of deaths in this age group. The proportion of deaths due to communicable diseases continued to decline with increasing age, such that these causes accounted for 35.7% of deaths tit hoses aged 15 to 29 (United Nations, (2012).).

Contaminated water serves as a mechanism to transmit communicable diseases such as diarrhea, cholera, dysentery, typhoid and guinea worm infection. WHO estimates that in 2008 diarrhea disease claimed the lives of 2.5 million people. For children under five, this burden is greater than the combined burden of HIV/AIDS and malaria. A total of 58 countries from all continents reported a

cumulative total of 589,854 cholera cases in 2011, representing an increase of 85% from 2010. The greatest proportion of cases was reported from the island of Hispaniola and the African continent. These trends reflect the need to shift from basic responsiveness to a comprehensive, multidisciplinary approach that works with communities to improve access to safe drinking water and sanitation encourages behavioral change and promotes the targeted use of oral cholera vaccines where the disease is endemic (World Health Organization, 2013).

In the industrialized world, sanitary habit is necessary to everyone as there are so many things that can pollute the water that we use every day. Refuse from the waste products from home, hospitals, industries can easily contaminate water when they are not well disposed. More than 90% of human waste in such kind of places are disposed untreated in rivers, then end up in pollution (Economic, 2008).

More than one billion people do not have access to a safe water supply within 1 km of their homes, relying instead on unprotected lakes, streams or shallow wells to meet household needs. Even where relatively clean water is available at a community source, it can easily be contaminated as it is collected, carried and stored in the home. From WHO estimation, unhygienic water and poor sanitation make more than four thousand deaths of people from diarrheal diseases and 90% are under five children living in the developing countries (Economic, 2008).

Health-based targets are founded for people to stay away from dangerous components in the water and lead and show the standards of water that people should drink. In general, the priorities, are to get an adequate clean and safe

water supply ,find out main factors which lead to bad health, remove chemical hazards, make the water acceptable for health, to apply the latest technologies to get clean and safe water.

Improving unsanitary environment alone however will not be enough as long as children continue to remain susceptible to the disease and are not effectively treated once it begins. Evidence has shown that children with poor health and nutritional status are more vulnerable to serious infections like acute diarrhea and suffer multiple episodes every year. At the same time, acute and prolonged diarrhea seriously exacerbates poor health and malnutrition in children, creating a deadly cycle. Reducing childhood diarrhea requires interventions to make children healthier and less likely to develop infections that lead to diarrhea; clean environments that are less likely to transmit disease; and the support of communities and caregivers in consistently reinforcing healthy behaviors and practices over time (World Health Organization(WHO) United Nations Children's Fund (UNICEF), 2009).

Many socioeconomic, environmental factors influence the health of under five children. Furthermore, mother is considered as a big importance in household and child caring activities. As a result, mother's education has been commonly described to be a key determinant of child health. In order to get a healthy life for the children, mothers should be educated about healthy behavior to develop good health knowledge and to apply it in their daily life based on their wills and to gain better knowledge, attitude, and health practice.

By disinfecting water, the great achievement in community health

protection can be obtained. Disinfection simply means the destruction or neutralization or killing of harmful pathogens. These pathogens are removed or killed and later come the safe water to use. Unless the disinfection is done, raw water used can cause illness. Among the many things used to disinfect water, alum potash and chlorine are popular.

2.1.3. Thailand Situation

In 2001, globally, although the diarrhea morbidity rate has remained unchanged (1488 and 1687 cases/ 100,000 populations in 1993 and 2002, respectively), the mortality rate due to diarrhea has declined, from 1.11 deaths/100,000 population in 1988 to 0.23 death/ 100,000 population. In 2002, a total of 1,055,393 cases of diarrhea were reported from the Thai National Notifiable Diseases Surveillance System. Among the patients, 30% is in children <5 years old, and 12% of them were admitted to hospitals (National disease surveillance, 2013).

In 2011, according to Annual Epidemiological Surveillance Reports (AESR) (National disease surveillance, 2013) in Thailand, 1,323,105 cases and 55 deaths of acute diarrhea are noted. In Tak province, Thailand, 17,446 cases of diarrhea in all population and 7,527 cases in age group under five are reported. Due to the shifting movement of the population of migrants, prevalence data is not available in these groups.

Rotavirus infection is the primary cause of severe diarrhea in children under 5 years old. In Thailand, the percentage of children with rotavirus diarrhea did not differ by geographical area. The incidence of acute diarrhea in the

community was nearly one case per person per year and declined with patient age. In non-hospitalized children with diarrhea, rotavirus infection was the main identified cause of diarrhea (12%), compared with bacterial diarrhea (7%). Children with rotavirus infection were more likely to have watery diarrhea and vomiting and to require hospitalization (Jiraphongsa et al., 2005).

Most countries have been trying their best to endorse the Millennium Development Goal 4 which is the target to reduce by two-thirds, between 1990 and 2015, the under five years old mortality rate. Clear goals and coverage targets through are required to make interventions to prevent and control diarrhea. Big expectations will come true if we take clean water every day. Targeting to children with highest risk, hard to be accessible and most neglected, identifying them with standard guidelines will show us how to narrow the gap, dramatically leading to great outcomes.

In Thailand, strategies for improving safe and reliable water supply and effective sanitation have been carried out for several decades. They also get achievements in the providing of safe drinking water and sanitary latrine use, especially in rural areas. During 1981 and 1990, the period that Thailand government declared as the “Decade of Water Supply and Sanitation in Thailand”, the dramatic increase in the socio-economic level of the country was seen.

2.1.4. More Severe Form of Diarrhea

Cholera is a diarrheal disease that can lead to rapid death if not detected and treated early with solutions made of oral rehydration salts. An estimated 1.4

billion people are at risk of cholera in endemic countries, with approximately 3 million cases and about 100,000 deaths per year worldwide. Children under age 5 account for about half the cases and deaths. Cholera affects the most marginalized populations-those who have the lowest access ti essential services such as adequate water, sanitation and healthcare and who already suffer from poor nutrition (World heakth organization (WHO) United Nations Children's Fund (UNICEF), 2012).

A good example of the importance of water disinfection is the cholera epidemic that began in Peru in 1991, and spread to 19 Latin American countries. Inadequate disinfection of municipal water supplies was major factors contributing to the spread of the epidemic that caused more than one million illnesses and 12,000 deaths. During the outbreak, officials with the Pan American Health Organization reported that concerns about potential health risks from disinfection byproducts led municipalities and communities in the region to abandon chlorination. One official later wrote, "Rather than being abated by increased use of chlorination, the waterborne transmission of cholera was actually aided because of worries about chlorination byproducts (Guthmann, 1995).

2.1.5. Migrants and Thailand

Due to the ongoing violence and unrest in Myanmar, many Myanmar people, especially of ethnic minority, have fled to surrounding countries. In Thailand there are thought to be more than 2 million people displaced from Myanmar and more than 446,000 people are internally displaced in the rural areas of Eastern Myanmar due to armed conflict and human right violations. The children of these families face many barriers to a healthy and prosperous future, including lack of

education, proper housing and basic human rights (Dr. Cynthia Maung and the Founders of the Mae Tao Clinic, 2010).

Thailand has also been attracting low-wage workers from neighboring countries as well as from countries further away since at least the early 1990s. It started a policy to register workers from Myanmar in ten provinces along the borders in 1992. That policy later includes workers in less-skilled posts from Cambodia, the Lao People's Democratic Republic and Myanmar every province in Thailand. In 2010, Thailand Migration Report showed that at least one million workers were at some stages of registration and nearly 1.4 million dependents and others who were not registered (Pholphirul, 2012).

2.1.6. Conditions of migrant people in Mae-Sot

It is not easy to quantify the population of migrants but they can be assumed as a large group with unmet health care needs. The estimated Myanmar migrant people in Thailand is about two million in 2010, most of them cannot access health care and are exposed to tropical and infectious diseases. Also, most of working migrants do not have legal residences in Thailand. Therefore, they have many problems in seeing a health care provider because of fear of arrest, harassment or deportation and cannot get legal access to health care places (Dr. Cynthia Maung and the Founders of the Mae Tao Clinic, 2010).

Even registered migrant workers and those who hold certain identification cards are only allowed to choose to pay a premium of 1900 THB (including the registration medical check fee of 600 THB) to get access to the 30 Bath heath care scheme, which was introduced in 2001 by Thaksin government to give all Thais

the opportunity to access basic health care. In one of the service schedules, it was shown that three types of services are present; free services, services for which the migrant worker must pay the cost themselves. Dependents, including children, are not included in the registered workers' premium and a separate premium must be purchased; the cost of this beyond many families ((Burma), 2009).

The health of migrants is an important issue for human rights, public health and economic perspectives. From a human rights perspective, migrants should not be excluded from accessing basic health services. In terms of public health, migrants should not also be excluded from the health care system as they are mobile and could contract diseases and transmit them to the wider community. They are also often not immunized or rapidly treated when sick, which consequently not only puts them at risk but presents risks to the overall community as well. The economic perspective is that given the cost to employers of recruiting, training and maintaining staff, migrants should have access to health services to safeguard a healthier workforce ((UNICEF), 2012).

2.2. Theories of Health Behaviors concerning with prevention of childhood diarrhea

Individuals are essential units of health education and health behavior theory, research and practice. This does not mean that the individual is the only or necessarily the most important unit of intervention. But all other units, whether they are groups, organizations, worksites, communities or larger units, are composed of individuals.

Theory of Planned Behavior

The Theory of Planned Behavior (TBP) and the Health Belief Model share a foundation in the argument that behavior reflects expected value. TPB assumes a causal chain that links attitudes, subjective norms and perceived behavioral control to behavior through behavioral intentions. Several aspects of this claim merit additional discussion. First, the theory requires highly specific behavioral intentions measures that closely match the intended behaviors. Behavioral intentions measures can assess planning (e.g. "Do you plan to wash your hands with soap after using latrine?"), desire (e.g. "Would you like to wash your hands with soap after using latrine?"), and expectation (e.g. "How likely is it that you will wash your hands with soap after using latrine?'). Second, TBP postulates that intentions lead to behavior but suggests a more qualified assessment. Third, TBP posits that attitudes can affect behavior only through intentions (Glanz, Rimer, & Viswanath, 2008).

Health belief models

Three beliefs or perceptions hypothesize to be associated with preventive behavior outcomes were assessed: self-efficacy, empowerment, and motivation. Self-efficacy or the belief that one is capable of accomplishing a task (Bandura, 1977), is evaluated by whether the respondent agreed or disagreed with the statement, "I can prevent my child from getting diarrhea." While self-efficacy focuses on perceptions and expectations, empowerment examines the ability to make choices in regards to resources, agency, and achievements (Kabeer, Fathima,

& Shoba, 1999). In this study, empowerment is examined in relation to material resources, because as described above, women's decision-making ability on household expenses has been highly correlated with decreased child mortality. Empowerment is defined by the respondent's alignment with the statement, "I often make decisions on how to spend money in the household."

Both self-efficacy and empowerment represent perceived ability, but motivation evaluates underlying sentiments of whether or not the respondent wants to improve the status quo. The best question in the survey to gauge motivation is asking overall, how satisfy the respondent is with her current sanitation situation. It is hypothesized that because such a large percentage of respondents believed that uncleanliness is a risk factor for childhood diarrhea, this motivation to improve sanitation may also experience a spill-over effect into hygiene, water treatment, and ORS use practices.

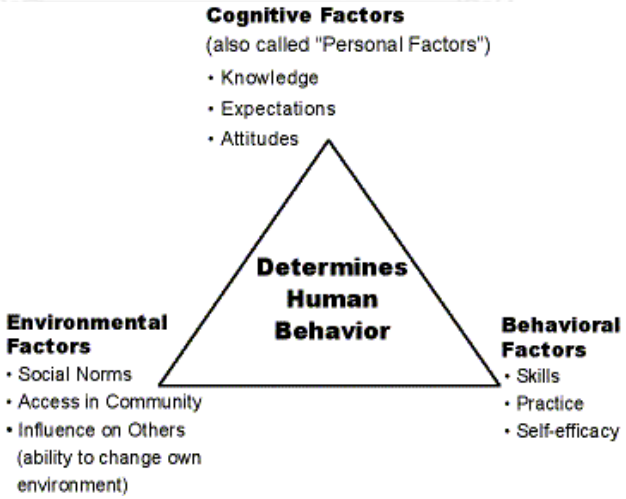


Figure 5. Social Cognitive Theory (Ref: recapp.etr.org)

Social cognitive theory

Social cognitive theory also incorporates outcome expectancy, but emphasizes self-efficacy, or a perception of oneself being capable of performing certain skills to attain some outcome. The theory behind this model builds from the research of (Bandura, 1977). Bandura hypothesized that self-efficacy is a function of performance accomplishments, vicarious experience, verbal persuasion, and diminished fear. Through multiple experiments, he showed that perceived self-efficacy was a better predictor for a certain behavior in the face of the unknown than past performance could predict. Self-efficacy has been identified as an influential factor in the practice of many preventive health behaviors, such as administration of self-breast examinations (Jirojwong & MacLennan, 2003) and the behaviors caregivers use to prevent their children from getting lead poisoning (Kegler & Malcoe, 2004).

2.3. Socio-demographic characteristics influencing on childhood diarrhea

Children at the age of 6-11 months have high percentage of diarrhea cases than another age of under-five years children (Rohmawati). The average prevalence of diarrhea peaks at age 6-17 months followed by a decline to levels near those for age 0-5 months by the end of the third year of life (Stallings, 2004).

The mothers older than 31 years and those who were working outside the home and the mothers with three or more children had significantly better knowledge (Ghasemi et al., 2013). Compliance of the mothers was better among mothers whose children were three years or more of age, mothers with good knowledge and positive attitude towards the use of oral rehydration solution and

those with moderate to good practice with the use of oral rehydration solution (Akrem Mohammad Al-Atrushi SYS, 2012).

Duration of stay in Thailand has a high significance with health risk behavior (Aung). One of the studies in China showed that lower family income, lower parental height, belonging to the Miao, Yi and Hani ethnic groups compared with Han and poorer maternal child-rearing behavior significantly increased the risk for stunting of children (Li et al., 1999).

Population health status and its distribution are determined by population-level influences, individual level health risks, and the health care system. The last twos are strongly influenced by the household economy (Woodward, Drager, Beaglehole, & Lipson, 2001).

Several studies of non-economic influences (e.g. social class, education, linguistic and cultural competence) on utilization of health care services among ethnic minorities have focused on inequality due to discriminations existing in the health care system (Kasper, Albretcht, Fitzpatrick, & Scrimshaw, 2000). The lack of health insurance coverage limits utilization of health care services by members of ethnic minorities. Some members of ethnic minorities do not receive the Thai Government's subsidized health insurance cards since they do not have Thai citizenship (Isarabhakdi, 2004).

Geographic and physical barriers often play an important role in access to health care services among minority people since most of them live far from roads and health centers. One study reported that ethnic minority villages were less likely to have their own medical professionals and basic medical supplies,

and had a smaller number of health workers compared to nonminority villages. As a result, the quality of health care among people in minority villages tends to be below the national average (Hu, 2010). Various cultural barriers (particularly, language, belief and religion) often make it inconvenient for people of ethnic minorities to have access to health care services.

The percentage of having diarrhea in households which had indoor latrines (50%) was much higher than that of having diarrhea in households which did not have latrines (26.4%). Households with indoor latrine were 2.38 times more likely to get diarrhea than those without it (Ye Paing Kyi, 2010).

2.4. Knowledge and Attitude of Mother influencing on childhood diarrhea

Mothers' knowledge is not enough and they should be further educated about home-base care management of diarrhea to decrease the mortality and morbidity (Parvez et al., 2010). There were positive correlations between mothers' knowledge about diarrhea and mothers' age and education, family size and husbands' income, the associations between mothers' knowledge and husbands' income were statistically significant (Mukhtar, Izham, & Pathiyil, 2011). Lack of formal education is related significantly to diarrhea with p-value=0.021 (Valerie Daw Tin Shwe, 2010).

Home management or medication

Most of respondents agreed on giving medication for treatment and feeding their ill children at home while some would offer fluids and breastfeed their sick children. This awareness on home management is appropriate and is in

conformity with family and community practices that promote child survival and development (Chandler et al., 2008).

One study in Tanzania assessed the mothers' knowledge on management of diarrhea with respect to educational levels70 (43.5%) respondents entirely relied on traditional remedies for management of diarrhea. Of those 17 (24.3%) had no formal education while 37 (53%) and 11 (15.7%) had primary and secondary education, respectively. Metronidazole and oral rehydration solution were cited by 35% and 10.5%, of respondents as the most effective conventional chemotherapeutic agents frequently used in resolving diarrheal problems (Mwambete & Joseph, 2010).

A cross sectional study was carried out on 400 mothers attending the OPD at urban health center of the teaching hospital in Bhopal in Central India.75% of the mothers were educated, only 156 knew the correct method of ORS preparation and its use whereas out of the remaining mothers who knew about ORS did not know the correct method of using ORS. However, literacy rate showed positive association with adequacy of ORS knowledge ($p<0.001$) (Mahor, 2013). Mothers considered ORS as other form of medication and not necessarily a replacement of body fluid (Rasania, Singh, Pathi, Matta, & Singh, 2005).

To treat the diarrhea child to stop diarrhea is clearly what their mothers targeted first. Strikingly, their most frequent expectation of either antibiotics or ORS was that these treatments would stop the diarrhea. If a caregiver had any previous experience using ORS, she would typically find and use ORS during the episodes (Zwisler, Simpson, & Moodley, 2013).

2.5. Practices to prevent Diarrhea

Improvements in access to safe water and adequate sanitation, along with the promotion of good hygiene practices (particularly hand-washing with soap), can help prevent childhood diarrhea. In fact, an estimated 88 per cent of diarrheal deaths worldwide are attributable to unsafe water, inadequate sanitation and poor hygiene (Black, Morris, & Bryce, 2003).

Improvements in sanitation reduce the transmission of pathogens that cause diarrhea by preventing human fecal matter from contaminating environments. Improving sanitation facilities has been associated with an estimated median reduction in diarrhea incidence of 36 per cent across reviewed studies (Moon et al., 2010). Safe disposal of child feces is critical to reducing fecal-oral contamination that facilitates transmission of diarrhea pathogens. A child's using a toilet directly or rinsing a child's stools into a toilet or latrine is considered safe disposal (World heakth organization (WHO) United Nations Children's Fund (UNICEF), 2012).

The Millennium Development Goal targets on use of an improved drinking water source has been met globally as of 2010; a stunning success. Yet 783 million people still do not use an improved drinking water source, and 2.5 billion do not use an improved sanitation facility, mostly in the poorest households and rural areas; 90 per cent of people who practice open defecation, the riskiest sanitation practice, live in rural areas. Nearly 90 % of deaths due to diarrhea worldwide have been attributed to unsafe water, inadequate sanitation and poor hygiene. Hand washing with water and soap, in particular, is among the most cost-

effective health interventions to reduce the incidence of both childhood pneumonia and diarrhea (United Nations, (2012).).

Water, sanitation and hygiene programs typically include a number of interventions that work to reduce the number of diarrhea cases. These include: disposing of human excreta in a sanitary manner, washing hands with soap, increasing access to safe water, improving water quality at the source, and treating household water and storing it safely (World Health Organization(WHO) United Nations Children's Fund (UNICEF), 2009).

Current WHO guidelines suggest that Vitamin A should be given to all the children until they are 5 years old for prevention of diarrhea, ORS solution to dehydrated children (or intravenous fluids in severe dehydration cases), adding zinc tablets supplement, managing with suitable drugs and treating every children with longer period of diarrhea for infections which is non-intestinal in origin with necessary treatments. Their mothers are also advised to give more fluids orally and nutritious feeding during this time and to treat with diet which is free of lactose to under six month children.

CHAPTER III

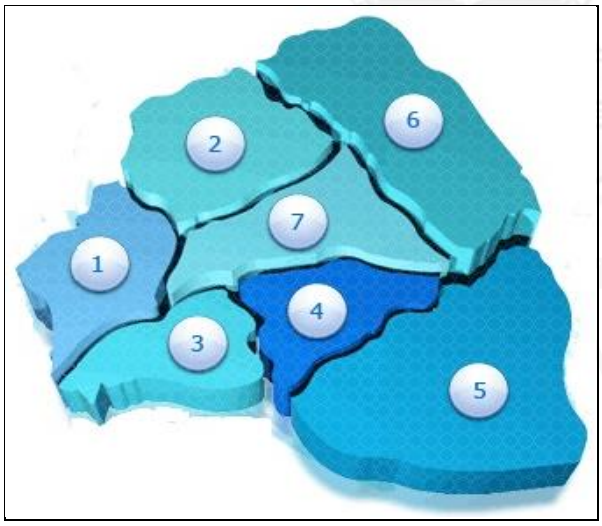
RESEARCH METHODOLOGY

3.1. Study Design

-This study design was a Quantitative, cross-sectional survey.

3.2. Study area

The district (Amphoe) Mae Sot was subdivided into 10 subdistricts (Tambon), which were further subdivided into 86 villages (muban). The city (thesaban nakhon) Mae Sot covered the whole tambon Phatadpadaeng Figure (5). Study area was in Ban Hua Fai, Phatadpadaeng sub-district, Mae Sot district, Tak Province, Thailand. It was conducted through Myanmar migrants' residences. As migrants were living hidden and scattered, survey was conducted through almost all the Mothers who were eligible to the inclusion criteria.



1. Khanphi Bam
2. Hua Fai
3. MaeTao Mai
4. Pa Te
5. Tum Suea
6. Khun Huai
7. Auang Doi

Figure. 5. Map of Phatadpadaeng sub-district and its components (Moos)

(ref: www. phatadpadaeng.go.th)

3.3. Study population and Sample size

Study population was all Myanmar migrant mothers who had children under five years old. The number of mother of mothers who had children under five years old was almost 1000 in the Hua Fai village as far as collected as a primary survey. The population of 100 children less than five years had been collected. From the Data of vaccination campaign of Shoklo Malaria Research Unit (SMRU), proportion of children under five years of age in Mae sot District is 13.4% [662/ 4938] (Canavati, Plugge, Suwanjatuporn, Sombatrungjaroen, & Nosten, 2011).

All the households in Hua Fai Village which had children less than five years were included both registered and un-registered. With the scientific calculation, the number was more than this and impractical to study 400 children. Therefore, the formula that estimated a population with specified absolute precision was used (Lwanga & Lemeshow, 1991).

$$n = \frac{Z^2 p(1-p)}{d^2}$$

(a) Anticipated population proportion = 50%

(b) Confidence level = 95%

(c) Absolute precision =10 percentage points

i.e.; for P=0.50 and d=0.10 a sample size of 96 would be required. By adding 20% non-respondent rate, sample size was 116. Therefore, 116 children were studied in this survey.

3.4. Research criteria

3.4.1 Inclusion criteria

- Mothers who had children under five years old

- Myanmar migrant

-Willing to participate

-Respondent mother must have at least one experience of diarrhea in the child within the past two months.

3.4.2 Exclusion criteria

-Thai people

-Mothers who had sent back their under five children to Myanmar and did not live together

-Mother who could not answer the questionnaires (due to mental and physical problems)

3.5. Measurement Tools

-Questionnaires which were related to prevention of diarrhea in children under-five years were used. They were made after reviewing the published articles, standard questionnaires and previously done thesis books, checked by three experts and revised according to situation. These were first prepared in English language and then translated into Myanmar language by the researcher.

- The researcher developed a questionnaire which was divided into 4 parts as follows:

Part 1- personal data of respondent mothers including age, number of children, breast-feeding status, presence of work permit, ethnicity, marital status, education,

occupations, average income, enough or not enough, duration of stay in Thailand, Thai language skill and history of diarrhea in the past 2 months.

Part 2- Environmental data of water source, type of latrine, waste disposal method and satisfaction of current sanitation were interviewed.

Part 3- Knowledge of mothers on prevention of diarrhea in their children less than five years of age, living in Hua Fai Village, Mae-sot district, Tak province, Thailand. This part contains 17 questions including causes of diarrhea, preventive measures, dangerous symptoms, importance of rehydration and sanitary habits. Scores are classified into three levels.

"Correct"	➢ 'you think that sentence is correct'	➢2 points
"Not sure"	➢ 'you are not able to decide whether it is correct or incorrect about the sentence'	➢1 point
"Incorrect"	➢ 'you think that sentence is not correct'	➢0 point

After calculation of scores and distribution data by analysis, the total score was taken to compare with the Bloom's cut of point (1968).

Score 0-65 (less than 60%) indicated low level of knowledge.

66-81(60-80%) indicated moderate level of knowledge.

82-115(>80%) indicated high levels of knowledge.

For every question with "Yes or No" answers, 1 point was given if answered "Yes" and 0 point to "No".

Part 4 – Attitude on prevention of diarrhea in their children less than five years of age, living in Hua Fai Village, Mae-sot district, Tak province, Thailand. This part contained 8 questions including home management of diarrhea, care to the sick

child and individual's ideas on preventive measures. Then, scores were divided into three groups.

"Agree"	➢ 'you agree with that sentence'	➢2 points
"Neutral"	➢ 'you are not sure about that sentence'	➢1 point
"Disagree"	➢ 'you do not agree with that sentence'	➢0 point

After calculation of scores, Bloom's cut of point was used to compare with the following criteria:

Score 0-28(60%) indicated negative level of attitude

29-38(60-80%) indicated neutral level of attitude

39-48(>80%) indicated positive level of attitude.

For every question with "Yes or No" answers, 1 point was given if answered "Yes" and 0 point to "No".

Part 5- Practice on prevention of diarrhea in their children less than five years of age, living in Hua Fai Village, Mae-sot district, Tak province, Thailand. This part was composed of 20 questions and scores are grouped into three levels which were:

"Always"	➢ 'you preform that behavior mentioned in the question every time'	➢2 points
"Sometimes"	➢ 'you perform that behavior mentioned in the question but not every time.'	➢1 point
"Never"	➢ 'you do not perform that behavior mentioned in the question anytime.'	➢0 point

This study set criteria for analysis of practice of diarrhea in the mothers of under five children according to Bloom's cut of point.

After calculating scores, they were divided into three levels.

Score 0-41(60%) indicates low level of preventive practice

42-57(60-80%) indicates moderate level of preventive practice

58-73(>80%) indicates high level of preventive practice

For every question with “Yes or No” answers, 1 point was given if answered “Yes” and 0 point to “No”.

3.6. (i)Reliability

A pre-test was done at Kanchanaburi Migrant school students who were eligible to the research criteria with the help of Myanmar Volunteer teachers. Although they were students, but most of them were over 25 years old and some of them were married and had children. One third of population of sample size (30 People) was questioned. (Pilot test). Chronbatch’s alpha score was 7.40 for knowledge and 7.23 for attitude.

(ii)Validity

The index of item-objective congruence (IOC) developed by Rovinelli and Hambleton (1977) (Hambleton, 1980) was computed using the equation:

$$I_{ik} = \frac{(N-1)\sum_{j=1}^{n} X_{ijk} - \sum_{i=1}^{N}\sum_{j=1}^{n} X_{ijk} + \sum_{j=1}^{n} X_{ijk}}{2(N-1)n}$$

Where, Itk is the index of item-objective congruence for item k on objective i,

, N is the number of objectives (i = 1, 2... N),

, n is the number of content specialists (j = 1, 2, ..., n), and

, X is the rating (1, 0, -1) of item k as a measure of objective i by content specialists. The result for IOC was +0.87.

The questionnaires for this study were developed after thorough reviews of published articles, research reports and previously done thesis books. Then, they were verified through consultation with experts to ensure the appropriateness and validity of the questionnaires when used in Mae-Sot.

3.7. Data collection process

The questionnaires were asked in Hua Fai village, Phatadpadaeng sub-district, Mae Sot District. Both illegal and legal migrants living in the village were interviewed when they were in accordance with the research criteria. Face to face interview of the study subjects was closely trained to two interviewers for 2 days. Both interviewers were graduates and they used to help researchers when they wanted to collect data in Mae Sot. Researcher also accompanied them every time in the interview. Information and questions were conveyed in participant information sheet and obtain informed consent. Supervision by the researcher was done every time.

The researcher and interviewers went to the participants' homes or the workplaces based on the condition. Time for the survey was arranged in the evening in weekdays when every respondent was free to be asked questions. This could manage the survey time not to interrupt their working hours. Most of the Myanmar migrants in Mae-Sot were unregistered and they were afraid to answer their situations. A culturally sensitive approach was expressed before and during the interview by using polite words and manners. The respondents felt at ease and could cooperate conveniently in this way.

During this period, each household of the corresponding respondent got a pack of soap as a present and candies for the children who could eat. They were provided with correct information of the given questionnaires after the completion if they filled something not correct. Every consultation about their children's health problems in their household was accepted whenever necessary.

3.8. Data analysis

Before data analysis, the results were checked whether they were in the normal distribution or not. For the data analysis the questionnaires that had been collected are grouped, edited and coded, data was entered and analyzed using SPSS version 20. Descriptive statistics was described to show frequency distribution, percentage distribution, mean, median and standard deviation appropriately. Then Pearson's chi-square test and Fisher's exact test was used to show association between each independent variable and diarrhea among under under-five migrant children in Mae-Sot. Spearman's Correlation test was used to find the magnitude and direction of association between the variables.

3.9. Ethical Consideration

Ethical approval was obtained from Chulalongkorn University ethical committee and approval number was 047/2014.

Chapter IV
RESULTS

In this chapter, detailed information of the results obtained from the analysis of the survey was described. The variables were presented as simple percentages, means and standard deviations etc., as appropriate according to the nature of the variables. Firstly, the demographic data were described and then followed by the responses of each part of the questionnaire. The level of knowledge, attitude and practice scores were then expressed followed by the Chi-square test results used as appropriate, to know whether there was any association between socio-demographic characteristics and practice score. In the last, correlation was used to calculate to find out the relationship between knowledge and practice and attitude and practice scores among the respondents.

4.1 Demographic Information and environment

The study was conducted in Hua Fai Village, Phathephadaeng sub-district, Mae sot district, Tak province, Thailand. A total of one hundred and twelve participants (112) completed the survey questionnaires. All respondents were Myanmar migrant women who had children less than five years of age. The mean age of the respondents was 31 years with a standard deviation of 7.49. The range of age was from 19 to 48 years. In the table 2, it was shown that the majority of the respondents (46.4%) were in the age range of 19-30 years, 39.3% were less than 40 years and the rest 14.3% were older than 40 years. 65.2% of them had 1-2 children and 72.3% breast-fed their children. Most of the respondents were Burma (82%) and Karen (22.3%) and did not have work permit (78.6%). Many of them were married (91.1%) and lived together as a family whereas (7.1%) were widowed and (1.8%)

separate. Education status was quite fair with primary school (46.4%), middle school (24.1%) and high school (22.3%). Most of the respondent mothers were dependent (72.3%) and occupations of husbands were (42.9%) construction work mostly. Out of those who were employed and economically active, the common income was between (5000-10000 baht/month) (51.8%) but only (25%) of respondents said it was "always enough". Nearly all of them had been staying in Thailand for more than a year, yet, (50.9%) can speak basis Thai language only.

Table 4.1.: Distribution of the respondents by socio-demographic characteristics

Characteristics		Number(n=112)	Percentage
Age Of Mothers(years)			
19-30		52	46.4
31-40		44	39.3
>40		16	14.3
Min=19	Max=48	SD=7.491	Mean =31.66
Number of children			
1-2		73	65.2
3-4		21	18.8
>4		18	16.1
Age of Children(months)			
0-24		63	56.3
24-59		49	43.8
Median=24 month		Min=2 month	SD= 17.727
Mode=36 month		Max=59 month	
Breast feed or not			
No		31	27.7
Yes		81	72.3
Presence of Work permit			
No		88	78.6
Yes		24	21.4

Ethnicity		
Burma	82	73.2
Shan	2	1.8
Karen	25	22.3
Mon	2	1.8
other	1	0.9
Marital status		
Marriage	102	91.1
Widowed	8	7.1
Separate	2	1.8
Education		
Illiterate	8	7.1
Primary school	52	46.4
Middle school	27	24.1
High school	25	22.3
Occupation of mother		
Housewife	81	72.3
Seller	5	4.5
Factory worker	18	16.1
Construction worker	2	1.8
other	6	5.4
Occupation of father		
Laborer	5	4.5
Seller	10	8.9
Factory worker	26	23.2
Construction worker	48	42.9
other	23	20.5
Average income (Thai Baht per month)		
<3000	5	4.5
3000-5000	41	36.6
5001-10000	58	51.8
10001-20000	8	7.1
Enough income or not		
Not enough	22	19.6
Sometimes enough	62	55.4
Always enough	28	25

Duration of stay in Thai		
< 1year	3	2.7
1-2 year	9	8
>2year	100	89.3
Thai language skill		
Cannot speak	45	40.2
Can speak basis	57	50.9
Can speak but cannot read and write	10	8.9
History of diarrhea in the past 2 months		
yes	112	100

Table 4.2. Distribution of Respondents by Environmental Factors

Environment		Number (%)
Drinking water source	Purified Water	92 (82.1%)
	Un-purified water	20 (17.9%)
Latrine Type	Sanitary latrine	86 (76.8%)
	Unsanitary latrine	26 (23.2%)
Waste disposal method	Sanitary	68 (60.7%)
	Unsanitary	44 (39.3%)
Current sanitation of the family	Generally satisfied	49 (43.8%)
	Not generally satisfied	63 (56.3%)

82.1% People living in this village drunk only purified drinking water and another 17.9% living in the farm or far place used open well and pond water for drinking purposes. More than ¾ of the households had latrines with proper cover and waste disposal method was good in 60.7 % of people in this area. Asking about the satisfaction of current sanitation of their households, it was found out that 43.8% were generally satisfied and 56.3% were not.

4.2- Knowledge part

Variables included in this knowledge were calculated and summarized according conceptual framework. Detailed information was referred to Appendix table 1. Here, there were 75.9% of people who had good preventive behavioral knowledge of Diarrhea and 65.7 % knew about the dangerous symptoms of consequences of diarrhea well. Again, 65.7% of respondents agreed that rehydration with oral rehydration salt solution was very important and 93.6% of them were in accordance with good sanitary habits.

Table 4.2.1 : Knowledge of prevention on diarrhea in children under five years

Variables	High	Moderate	Low
Preventive Behaviors	85 (75.9%)	12 (10.7%)	15 (13.5%)
Dangerous symptoms	73 (65.7%)	20 (17.9%)	19 (17.1%)
Importance of rehydration	73 (65.7%)	8 (7.2%)	31 (27.7%)
Sanitary habit	104 (93.6%)	0 (0%)	8 (7.2%)

Table 4.2.2. Knowledge scores on prevention of diarrhea in children under five years

Knowledge score			Number (%)	
poor	(0-65)		0	(0)
intermediate	(66-81)		16	(14.3)
high	(82-115)		96	(85.7)
Minimum=67	Maximum=103	SD=8.044	Mean=95.21	

From the table mentioned above, in overall respondents, 96 (85.7%) had a high level of knowledge of prevention of diarrhea. The mean knowledge score for the respondents was 85.21 out of possible 115 points (SD=8.044). The range of the knowledge score was 67 to 103 as mentioned in the Table (4.2). Results of knowledge on prevention of diarrhea of the respondents showed that there were no participants with poor knowledge, 14.3% with intermediate knowledge and 85.7% with high knowledge.

Results of the answers of the knowledge part of questionnaire were summarized in Table (4.2). 98.2% and 97.3% of the respondents knew that diarrhea was caused by drinking contaminated water and eating contaminated food (Item; K2.1 and K2.2). The question which they could answer least was red eyes which was actually not the dangerous symptom of diarrhea (8.9%) (Item K11.2).

4.3 – Attitude part

From the summation of results from attitude on prevention of diarrhea in children under five years, 48.6% of people had positive attitude on home management of diarrhea which included first aid to the child not to happen severe diarrhea. Nearly 75% of respondents had positive attitude on giving care on the sick child but the rest also gave care to their child and were trying to catch correct answers as much as they could. Details are described in the Appendix table 2.

Table 4.3.1: Attitude on prevention of diarrhea in children under five years

Variables	Positive	Neutral	Negative
Home management of Diarrhea	54 (48.6%)	19 (17%)	39 (35.1%)
Care to the sick child	83 (74.1%)	4 (3.6%)	25 (22.5%)

Table 4.3.2: Attitude scores on prevention of diarrhea in children under five

Attitude score			Number(%)
Negative	(0-28)		8 (7.1)
Neutral	(29-38)		98 (87.5)
Positive	(39-48)		6 (5.4)
Min=25	Max=40	SD=3.434	Mean=33.25

According to the results from the table (4.3.2), 7.1% had negative attitude, 87.5% had neutral attitude and 5.4 % had positive attitude on the prevention of diarrhea. The mean attitude score was 33.25 out of possible 48 points (SD=3.434). The range of attitude score was from 25 to 40.

Results of the attitude part of questionnaire were added in the appendix table (2). 99.1% of the respondents responded that children are more likely to cause diarrhea than adults. Most them gave answer that they used the method for safe drinking water not because they did not know other method (0%) but because that method they were using was effective (80.4%).

4.4: Practice part

When the respondents were asked on the condition giving responses when diarrhea in their children continued to happen for more than five times in a day, 84.8% of them answered that they always took them to a clinic or to a doctor. They was because, according to their feelings, they were staying away from their relatives and they did not want anything bad that came to cause their child's health worsen. Again on same question but the condition in which passage of diarrhea was less than five times in a day, a little more than half of the respondents would give medicine at

home. This was reasonable as they were not surviving in a flexible condition and earning a lot of money. 31.3% treated their child traditionally and 25.9% with anti-diarrhea medicines.

Many of the respondents were using the correct patterns of washing hands in their daily lives and they were 83% on before using toilet, 88.4% on after cleaning up a child, 89.3% on before feeding a child, 75.9% on after feeding a child, etc. as well as had place for washing hands (99.1%) and soap was available in the place (99.1%). For food, 99.1% washed vegetables and meat before cooking and covered food in order to prevent flies. Moreover, when asked about the pattern of treating food and drink during the episodes of diarrhea in their child, only 28.6% of people increased giving food and 12.5% people increased drinks which were the ways to nourish the child again.

Although most of the villagers were using purified-water for drinking, they always boiled water (71.4%) to have plain tea and to give warm water to the sick as well as 99.1% covered the drinking water container with proper things and stored it separately from domestic water.

All the households in the village had toilets either separately or in common. The toilets were connected 51.8% with septic tanks, 25% with pit with cover and 23.2% with pit without cover. They were seen clean (57.1%), in privacy (60.7%), convenient (65.2%) but 56.3% of them were within 10 meters away from wells. Most of over two-year children were using latrine themselves (41.1%) and 32.2% of under two-year children with the diapers. 60.7% of the respondents used the sanitary method of waste disposal and 43.8% generally satisfied their current sanitation.

Table (4.4.1)Practice towards prevention of diarrhea

	Questions	Always	Sometimes	Never
Treating the diarrhea child (If more than 5 times in a day?)				
p.1.1.1	Nothing, no treatment	18(16.1)	0(0)	94(83.9)
p.1.1.2	Take to a clinic / doctor	95(84.8)	14(12.5)	3(2.7)
p.1.1.3	Give medicine at home	25(22.3)	50(44.6)	37(33)
p.1.1.4	Give oral rehydration salts	48(42.9)	38(33.9)	26(23.2)
p.1.1.5	Visit traditional healer	28(25)	20(17.9)	64(57.1)
Treating the diarrhea child (If less than 5 times in a day?)				
p.1.2.1	Nothing, no treatment	17(15.2)	4(3.6)	91(81.3)
p.1.2.2	Take to a clinic / doctor	37(33)	45(40.2)	30(26.8)
p.1.2.3	Give medicine at home	30(26.8)	59(52.7)	23(20.5)
p.1.2.4	Give oral rehydration salts	27(42)	46(41.1)	19(17)
p.1.2.5	Visit traditional healer	26(23.2)	32(28.6)	54(48.2)
Pattern of washing hands				
p.2.1	Before using toilet	93(83)	19(17)	0(0)
p.2.2	After cleaning up a child	99(88.4)	12(10.7)	1(0.9)
p.2.3	Before feeding a child	100(89.3)	11(9.8)	1(0.9)
p.2.4	After feeding a child	85(75.9)	27(24.1)	0(0)
p.2.5	Before preparing food	63(56.3)	24(21.4)	25(22.3)
p.2.6	After preparing food	84(75)	24(21.4)	4(3.6)
p.4	Place for washing hands		Yes=111(99.1) No=1(0.9)	
p.5	Soap in the place of washing hands		Yes=111(99.1) No=1(0.9)	
P.6	Wash vegetables and meat before cooking	111(99.1)	1(0.9)	0(0)
p.7	Cover food in order to prevent flies		Yes=111(99.1) No=1(0.9)	
p.8	Make drinking water safe to drink	94(83.9)	0(0)	18(16.1)

9.1.1	Boiling	80(71.4)	7(6.3)	25(22.3)
p.9.1.2	Chlorinating	3(2.7)	1(0.9)	108(96.4)
p.9.1.3	Filter using ceramic filters	0(0)	1(0.9)	111(99.1)
p.9.1.4	Placing Under Sunlight	2(1.8)	1(0.9)	109(97.3)
p.9.1.5	Stand and settle itself	12(10.7)	0(0)	100(89.3)
p.9.1.6	Filter with cloth	21(18.8)	1(0.9)	90(80.4)
p.10	Cover the container that store water for drinking		Yes=111(99.1) No=1(0.9)	
p.11	Store water for drinking separately from water for other domestic purposes		Yes=111(99.1) No=1(0.9)	
p.12.1	Treat your child yourself when he/she gets diarrhea?	43(38.4)	42(37.5)	27(24.1)
p.12.2.1	Medicine	22(19.6)	14(12.5)	76(67.9)
p.12.2.2	Anti-diarrheas	31(27.7)	34(30.4)	47(42)
p.12.2.3	ORS	29(25.9)	44(39.3)	39(34.8)
p.12.2.4	Traditionally	35(31.3)	31(27.7)	46(41.1)
p.12.2.5	Only water	38(33.9)	11(9.8)	63(56.3)
P13	Pattern of changing the Diaper or clothes during the times of Diarrhea in a day	108(96.4)	1(0.9)	3(2.7)
p.14	During this last episode of diarrhea, did you offer him/her more to drink, about the same, or less than usual?	32(28.6)	51(45.5)	29(25.9)
p.15	During this last episode of diarrhea, did you offer him/her more to eat, about the same, or less than usual?	14(12.5)	42(37.5)	56(50)
p.16	Have toilet in your house?	112(100)	0(0)	0(0)
p.17	What kind of toilet facility do members of household usually use?	Septic tank-58(51.8)	Pit with cover- 28(25)	Pit coverless - 26(23.2)
p.18.1	Cleanliness?	64(57.1)	43(38.4)	5(4.5)
p.18.2	Privacy?	68(60.7)	35(31.3)	9(8)
p.18.3	Convenience?	73(65.2)	36(32.1)	3(2.7)

p.19	Is well in your house far from toilet?	>10m - 42(37.5)	5-10m - 2(6.3)	<10m -63(56.3)
How young children in your house are defecating?				
p.20.1.a	In a pot (< 2 years)	16(14.3)		
p.20.1.b	In a pot (> 2years)	4(3.6)		
p.20.2.a	In an open field(< 2 years)	1(0.9)		
p.20.2.b	In an open field (> 2years)	1(0.9)		
p.20.3.a	Done in the diaper(< 2 years)	36(32.2)	112(100%)	
p.20.3.b	Done in the diaper (> 2years)	2(1.8)		
p.20.4.a	Child uses latrine himself/herself(< 2 years)	2(1.8)		
p.20.4.b	Child uses latrine himself/herself(> 2years)	46(41.1)		
p.21	method of waste disposal in your house	68(60.7)	43(38.4)	1(0.9)
p.22	Overall, how satisfied is your family with your CURRENT sanitation situation?	49(43.8)	62(55.4)	1(0.9)

Table 4.4.2: Practice on prevention of diarrhea in children under five

Practice score	**Range**		**Number(%)**	
Poor	(0-41)		15	(13.4)
Moderate	(42-57)		69	(61.6)
Good	(58-73)		28	(25)
Min=36	Max=67	SD=8.142	Mean=53.88	

From the results of practice scores, there were 13.4% people with poor practice, 61.6% with moderate practice and 25% with good practice. The mean attitude was 53.88 out of the possible points 73 (SD=8.142). The range of the scores was from 36 to 67.

4.5. Comparison of Practice score between the Grouping Variables

Chi-square test was used to compare the scores of practice of prevention of diarrhea between the different groups (age groups, number of child, education, ethnicity, environment etc.).Some significance such as ethnicity, marital status, educational status, etc. was found out to be associated with the prevention practice. Also bivariate analysis was used to know the correlation between knowledge and attitude with the practice scores calculating the variables as continuous variables. The following tables were presented to provide detailed of these tests.

Table 4.5.1: Association of socio-demographic variables with practice of prevention of diarrhea

	Level of Practice			Fisher's Exact test	P value
	High N (%)	Moderate N (%)	Low N (%)		
Age Group Of Mothers (years)					
19-30	16(30.8)	29(55.8)	7(13.5)	5.198	0.260
31-40	9(20.5)	27(61.4)	8(18.2)		
Over 40	3(18.8)	13(81.2)	0(0)		
Number Of Children					
1-2	20(27.4)	40(54.8)	13(17.8)	5.993	0.186
3-4	6(28.6)	14(66.7)	1(4.8)		
Over 4	2(11.1)	15(83.3)	1(5.6)		
Age Group Of Children(months)					
0 - 24	11(17.5)	42(66.7)	10 (15.9)	4.534	0.099
25 - 59	17(34.7)	27(55.1)	5(10.2)	**(x^2)**	
Breast – feeding status					
Yes	20(24.7)	50(61.7)	11(13.6)	0.085	1.000
No	8(25.8)	19(61.3)	4(12.9)		
Presence of work permit					
Yes	4(16.7)	17(70.8)	3(12.5)	1.192	0.597
No	24(21.4)	52(46.4)	12(10.7)		

Ethnicity of respondent					
Burma	21 (25.6)	53 (64.6)	8 (7.1)	3.380	0.149
Other	7 (6.2)	16 (14.3)	7 (6.2)	**(x^2)**	
Marital status					
Married	21 (20.6)	66 (64.7)	15 (14.7)	9.419	0.001
Others	7 (70)	3 (30)	0 (0)		
Education Status					
Poor level	21 (35)	28 (46.7)	11 (18.3)	12.135	0.002
Good level	7 (6.2)	41 (36.6)	4 (3.6)		
Occupation of Mom					
Domestic/Others	24 (24.2)	62 (62.6)	13 (13.1)	0.691	0.758
Factory/Construction	4 (30.8)	7 (53.8)	2 (15.4)		
Father's Occupation					
Factory/Construction	12 (31.6)	23 (60.5)	3 (7.9)	2.214	0.337
Others	16(21.6)	46 (62.2)	12 (16.2)		
Income per month(Baht)					
0-3000	2(40)	1(20)	2(40)		
3001-5000	15(36.6)	21(51.2)	5(4.5)	12.587	0.028
5001-10000	11(19)	41(70.7)	6(10.3)		
10001-20000	0(0)	6(75)	2(25)		
Enough Income					
Not enough	7 (31.8)	15 (68.2)	0 (0)		
Sometimes enough	18 (16.1)	31(50)	13 (11.6)	12.947	0.009
Always enough	3 (10.7)	23 (82.1)	2 (7.1)		
Duration of stay in Thai					
0-2 year	2 (16.7)	8 (66.7)	2 (16.7)	0.639	0.823
>2 year	26 (26)	61 (61)	13 (13)		
Thai Language Skill					
Can speak Thai	10 (22.2)	28 (62.2)	7 (15.6)	0.500	0.786
Cannot speak Thai	18 (26.9)	41 (61.2)	8 (11.9)	**(x^2)**	

From the table (5.1.1) mentioned above, there was no association between age of mothers and level of practice of prevention of diarrhea. Mothers of older ages had same probability of practicing prevention with younger mothers. In terms of

number of children that the respondent mother had, there was no significant difference with the prevention practices. Having more children in the households had same level of probability of practicing prevention with having a child. Breast-feeding status did not have association with the level of practices and it showed that mothers of breast-fed and non-breast-fed babies had same ranks of probability in diarrhea prevention practices.

Presence of work permit had no association with levels of practices of prevention of diarrhea and work permit did not have any influence on having good practices. No association was found between ethnicity of the respondent and the prevention practices as the proportion of ethnic groups practicing different levels of prevention were similar with nearly 25% and 60%.

But marital status had strong significant association with level of practices (p=0.001) indicating widowed mothers and separate mothers had better practices than married mothers. Also, it was detected that education level of mothers had significant association with the level of practices (p=0.002). Different educational statuses might have different conditions of prevention practices.

Occupations of both mother and father were not found out to be significant with levels of prevention practices of diarrhea. Duration of stay in Thailand and Thai-language skill as a foreigner had no association with prevention practices of diarrhea.

There was a significant association with average income per month and levels of prevention practices of diarrhea (p=0.028). Poor practices were mostly found in low income respondents (40%) compared to high income respondents (25%). Having

enough income within a family had a significant association with levels of practices (p=0.009).

Table (4.5.2): Association of environmental factors with prevention practices of diarrhea

	Level of Practice			Fisher's exact test	P value
	High N (%)	Moderate N (%)	Low N (%)		
Source of Drinking Water					
Purified Drinking water	19(20.7)	61 (66.3)	12 (13)	5.637	0.048
Un-purified water	9 (45)	8 (40)	3 (15)		
Type of latrine					
Sanitary latrine	26 (30.2)	50 (58.1)	10 (11.6)	6.123	0.043
Unsanitary latrine	2 (7.7)	19(73.1)	5 (19.2)		
Waste Disposal Method					
Sanitary	15 (22.1)	47 (69.1)	6 (8.8)	4.882	0.102
Unsanitary	13 (29.5)	22 (50)	9 (20.5)	**(x^2)**	
Current Sanitation					
Generally satisfied	9 (18.4)	36 (73.5)	4 (8.2)	5.157	0.076
Not generally satisfied	19 (30.2)	33 (52.4)	11 (17.5)		

From the table mentioned above, there was a weak association between source of drinking water and levels of prevention of diarrhea (p=0.048). Same between type of latrine and levels of prevention practices, weak association was found (p=0.043). Improvements in the standards of drinking water might increase the level of prevention practices of diarrhea.

There were no association between waste disposal method and level of prevention practices as well as between satisfaction of current sanitation and levels of prevention practices of diarrhea.

Table 4.5.3: Association between knowledge and level of attitude towards diarrhea disease prevention

Level	Attitude			Fisher's Exact test	P value
	High	Intermediate	Low		
	No(%)	No(%)	No(%)		
Poor K	0(0)	0(0)	0(0)		
Fair K	0(0)	11(68.8)	5(31.2)	11.435	0.003
High K	6(6.2)	87(90.6)	3(3.1)		

There was a high statistically significant association among knowledge and level of attitude regarding diarrhea prevention among the respondents (P value=0.003).

Table 4.5.4: Association between knowledge and level of practice behaviors towards diarrhea disease prevention

Level	Practice			Fisher's exact test	P value
	High	Intermediate	Low		
	No(%)	No(%)	No(%)		
Poor Knowledge	0 (0)	0 (0)	0 (0)		
Fair Knowledge	2 (12.5)	8 (50)	6 (37.5)	7.768	0.015
High Knowledge	26 (27.1)	61 (63.5)	9 (9.4)		

There was a high statistically significant association among knowledge and level of practice regarding diarrhea prevention among the respondents (P value=0.015).

Table 4.5.5: Association between attitude and level of practice behaviors towards diarrheal disease

Level	Practice			Fisher's exact test	P value
	Poor	Moderate	High		
	No(%)	No(%)	No(%)		
Negative attitude	5 (62.5)	3 (37.5)	0 (0)		
Neutral attitude	9 (9.2)	61 (62.2)	28 (28.6)	14.627	0.002
Positive attitude	1 (16.7)	5 (83.3)	0 (0)		

A highly significant association was seen between attitude and levels of practice behaviors towards diarrhea disease prevention with P value= 0.002.

Table 4.5.6: Spearman's correlation table

	Age of mother	Number of child	Youngest child's age	Average Income per month	Knowledge	Attitude
Age of Mother						
Number of child	0.488**					
Youngest child's age	0.114	0.103				
Average Income per month	0.129	0.068	0.101			
Knowledge	-0.07	-0.116	-0.033	-0.247**		
Attitude	-0.064	0.030	0.175	-0.048	0.327**	
Practice	0.009	0.087	0.221*	-0.261**	0.240*	0.265**

**Correlation is significant at the 0.01 level (2-tailed).

*Correlation is significant at the 0.05 level (2-tailed).

Several scores were found significant in this calculation of correlation. There was a moderate positive correlation between age of mother and number child ($p<0.001$) indicating that number of child increased as age of mother increased. There was a mild negative correlation between knowledge and average income per month ($p<0.001$) showing that knowledge decreased when income increased. There could be seen a weak positive correlation between knowledge and attitude ($p<0.001$) presenting knowledge increased as attitude increased. A weak positive correlation was found to be significant between youngest child's age and practice ($p<0.05$) describing that practice increased as youngest child's age increased. There was a weak negative correlation between average income per month and practice ($p<0.001$) showing that practice increased as income decreased. A weak positive correlation appeared between knowledge and practice ($p<0.05$) knowing that practice increased as knowledge increased. Last, a weak positive correlation came out between attitude and practice ($p<0.001$) showing that practice increased as attitude increased.

CHAPTER V
DISCUSSION

In this chapter, a brief explanation of the findings and their significances to prevention practice of diarrhea will be presented with discussion, conclusion and recommendation for further research.

The general objective of this study is to study the factors influencing the maternal practice of Diarrhea prevention in their under five children, Mae Sot, Thailand. Statistical tests using to determine the association were Pearson's chi-square test, Fisher's exact test and Spearman's correlation test.

The results of the study will be discussed under the following parts

1. Association between the socio-demographic factors and practice of diarrhea prevention among the maternal and their under five children in Mae Sot, Thailand.2.
2. Association between the level of maternal knowledge, attitude and practice of Diarrhea prevention in their under five children, Mae Sot, Thailand.
3. Factors influencing the maternal practice of diarrhea prevention in their under five children, Mae Sot, Thailand.

5.1. Socio demographic characteristics of respondents with the association with the level of practice of prevention of diarrhea

Describing the results in this study, some of the demographic data were associated with the level of practice scores such as ethnicity, marital status, educational status and having enough income while other demographics were not. Therefore, the demographic characteristics investigated in this research determined the factors influencing the maternal practice of Diarrhea prevention in their under five children, Mae Sot, Thailand.

Age group of mothers had no association with the practice of diarrhea disease prevention. This might be because knowledge about how to prevent diarrhea in their children did not depend on the age of mother as some older mothers were still illiterate and believed in the wrong practice. This finding was not consistent with the study done in Iran (Ghasemi et al., 2013) showing that mothers whose aged more than 31 years had greater knowledge about diarrhea and its management.

According to their educational status which was found significant in this study ($p=0.002$), it was observed that maternal education and literacy levels were related to the awareness of prevention practices of diarrhea. Another study in done in Iran (Khalili et al., 2013) also gave a significance difference between education level and their knowledge as well as practice ($p <0.001$) and described that after finishing training programs, 80% of participants came to gain enough knowledge and their awareness inclined significantly.

There was no association between the number of children and prevention practice of diarrhea. This did not mean that more knowledge would come to them

after getting experiences from older children. As many of the migrants were staying hidden, their conditions and environment were poor being not able to protect infectious diseases like diarrhea. This was different from one study showing that mothers having 3 or more children had better knowledge about diarrhea prevention practice (Ghasemi et al., 2013).

Ethnicity was not statistically significant and associated with prevention practice of diarrhea in under-five children (p=0.172). This was not agreeable with a study in Burkina Faso on a topic of caregiver recognition of childhood diarrhea, care seeking behaviors and home treatment practices showing p value=0.011 (Wilson et al., 2012).

There could be seen a significant association between marital status of respondents and prevention practice of diarrhea (p=0.001) showing that widowed women have higher practice on prevention of diarrhea. This might be because there could be another thing that influenced to the mother e.g.; education influencing on the knowledge of widowed mothers in the community. This was not consistent with any other studies since it had been known for many years that people who are not married-whether single, separated, widowed or divorced- have higher mortality rates than married people.

A significant association was found between average income per month and prevention practices of diarrhea (p=0.028) showing that lower income family had poor practices. Another study that was described similarly was done in Malaysia showing that husband's monthly was strongly significant with childhood diarrhea (Mukhtar et al., 2011)

5.2. Association of environmental factors with the prevention practices of Diarrhea in the children under five in Mae Sot, Thailand

There was a significant association between source and levels of practice of prevention of diarrhea (p=0.048). This was consistent with a study in Indonesia that described a statistically significant different of diarrhea incidence between household who obtain the drinking water by buying and got it for free (p=0.001)(Rohmawati, 2010).

A significant association was detected between latrine type and prevention practices of diarrhea (p=0.043).This did not describe consistently with a study that there was no association between diarrhea and type of latrine but had a significance with latrine ownership and feces landfills (Rohmawati, 2010).

There was no significant association between waste disposal method and level of practice of prevention of diarrhea. Besides, no significant association existed between satisfaction of current sanitation and prevention practices of diarrhea. A poor environment in rural areas caused low productivity and consequently, generated low earnings for migrant people in every sector.

5.3. Association between the level of maternal knowledge, and practice of Diarrhea prevention in their under five children, Mae Sot, Thailand

There had been seen a statistically significant association between the knowledge and the attitude on prevention of diarrhea in under-five children (p=0.003). It was consistent with a study in Pakistan (Zafar, 2014) that respondents' knowledge on diarrhea had association with positive attitude with a p value= 0.000.

In this study, knowledge had significant positive association with practice of diarrhea prevention (p=0.0015). This result was not consistent with the study of (Sillah, Ho, & Chao, 2013) who carried out on a title “Knowledge, Attitude and Practice Assessment of Mothers in Managing Children under Five Years Old with Diarrhea in the Gambia” showing that several gaps existed between knowledge, attitude and practice of mothers in the management of diarrhea. The high knowledge revealed in this study had not influenced the practice of mothers in managing the disease. Somehow, there was a consistent study (Rohmawati, 2010) whose title is “factors associated with diarrhea among under-five years old children in Banten province Indonesia” interpreting that mother’s defecation place and hand washing behavior has strong association with diarrhea in children (p value <0.001 and 0.005). It is also consistent with another study (Zafar, 2014) which conducted to understand the knowledge, attitude and practice among mothers of children > 2 years of age regarding diarrhea (p=0.000).

This study had a significant association with attitude and practice of diarrhea prevention with p value= 0.002. It was agreeable with a study (HTAY WEI YAN AUNG, 2010) that had done on diarrhea preventive behavior of Myanmar immigrant caregivers with children under five showing p value= 0.000 between diarrhea preventive behavior and the level of perceptions.

There were only a few incorrect attitudes towards diarrhea prevention among the respondents. They were in the same question asking what is good to treat when the diarrhea child vomit. 87.7% of responded said orange juice should be given because it could refresh to the sick child. 62.4% of responded agreed that coffee should be offered to the diarrhea child because of the constipation effect. These

people might believe the traditional ways of treating the sick child as they were treated when they were young.

Knowledge, attitude and practice affecting on the diarrhea prevention were calculated as continuous variables and correlation coefficients were generated. Knowledge about diarrhea prevention was found to be significant with practice of diarrhea prevention (P=0.015) (Table 5.3), assuming that people who have high knowledge on diarrhea prevention will have high practice towards diarrhea disease prevention. In the same way, attitude was also shown a high significance that it is associated with practice towards diarrhea disease prevention (P=0.002) (Table 5.4).Therefore, a uniformity could be seen between chi-square testing and correlation analysis concerning the association of knowledge with attitude with practice. This implied that there was no major bias due to the preference of cut off points for clarifying the knowledge and attitude.

Although there were significant correlations between Knowledge score and Practice score as well as Attitude score and Practice score, further supportive intervention are still needed. This was because they only knew the causes, prevention, dangerous symptoms etc. by theoretically not because they got those actually from their own experiences but because some non-government used to give them health education at least once in a year. Both health education and support such as money, safe water, clean environment, etc. are in need for them.

5.3.1. Areas of high level of knowledge

The mean survey score was found out that 95.21 from a possible 110 points with a standard deviation of 8.044. Percentages of the participants who were interviewed in this study had 0% of low level of knowledge, 14.3% of intermediate level and 85.7% of high level. This could be because the participants were in frequent contact with the NGOs which offered them health education and might have known from the multi-media from television and advertisement ((Burma), 2009). But people did not try to practice well according to the information they had got. High amount of proportion of good knowledge was seen in these respondents (85.7%) and it could be due to the selection with the previous history diarrhea in the past two months.

The question that scored highest by the respondent was choosing the best way to dispose their children's' stool. Surprisingly, 99.1% of respondents chose the way to dispose in latrine. Only one participant answered there was no difference between disposing in latrine and disposing in other places but the place she was living was in the corn fields beside a drain and it was far away from others.

The respondents in this study also knew the causes of diarrhea which was an important thing in the prevention of diarrhea and it was those were the second highest scored questions answered by them with drinking contaminated water (98.2%) and eating contaminated food (97.3%).

Other questions that scored also high are the way to make the drinking water safe to prevent diarrhea (98.2%) and what to do when their children did not stop diarrhea (98.2%). For the first question, they answered "Boiling" since they knew it

can kill almost all the bacteria. For another question, they said they would go clinic and see doctor because they were living far from their relatives from Myanmar and they were very much worried about something that came to happen to their children.

5.3.2. Areas of knowledge deficit

Majority of the participants (73.2%) incorrectly gave answer the question on "sometimes blood in the stool". Actually, in severe acute diarrhea, there sometimes blood can be present in stool. Diarrhea caused by small intestine disease is typically high volume, watery, and often associated with malabsorption. Dehydration is frequent. Diarrhea caused by colonic involvement is more often associated with frequent small-volume stools, the presence of blood, and a sensation of urgency (K Park, 2011).

Another very important area that the participant could not score high score was giving complementary feeding to their children after 6 months (75%). They only believed that it could not prevent diarrhea. In reality, correct complementary feeding can give nourishment to the child and cover some of the illnesses. This is an important area which needs to be emphasized more in their family.

Furthermore, many of the respondents believed that filtering with cloth (65%) could prevent diarrhea caused by drinking water. It is only a method to remove dirt and material that can be seen only under normal eyes and simply cannot kill bacteria. This is another important issue which needs to be focused on.

5.4. Attitude towards diarrhea disease

The mean survey score for attitude question about diarrhea prevention was known to be 33.25 out of possible points 48. Most of the respondents participated in this study possessed neutral attitude (87.5%), negative attitude (7.1%) and (5.4%) positive attitude. The main reason was that they had a place in the center of village for discussing health matters which they created and built by themselves. This place took the responsibilities of health matters of the villagers living in that village including health education, donation of money to the needs, funeral and helping the sick, etc. So, they were in intimate contact with the knowledge of health problems. There might not be some other factors in this area.

5.5. Practice towards Diarrhea prevention in Migrant Children less than five years

Results of behaviors of mothers which were practiced to prevent diarrhea in their children were also came out as satisfactory outcomes. Hands were washed before feeding child 89.3%, before food handling 56.3%, after using toilet 83% (reverse answer of before using toilet) and after cleaning up a child's bottom 88.4%. Almost all of them kept food covered to prevent flies (99.1%). 72.3% of mothers breastfed their children and only one respondent used pond water for domestic purposes. So, it could be assumed that they were using the method of preparing food and covering food from flies.

It had been seen that 61.6% (more than half) of migrants in this area had moderate level of practice for diarrhea prevention. However not rich enough, they were, they usually bought purified water from outside and drunk (82.1%). As far as observed, the container and the lid of that purified water were clean enough. Latrines were present in every household both separately or in common with 58%

septic tanks, 28% with covered pits and 26% with coverless pits. The toilets were in generally good condition having cleanliness (57.1%), privacy (60.7%) and convenience (65.2%).

CHAPTER VI
CONCLUSION AND RECOMMENDATION

6.1. Conclusion

The results of this study that some of the demographic data such as marital status, educational status and average income were statistically significant and associated with practice on prevention of diarrhea. Knowledge was significantly associated with practice and hence, people who have higher knowledge regarding diarrhea disease will have a good practice in prevention of diarrhea in their under-five children. Measures against feeding practices during episodes of diarrhea were incorrectly treated to the children. Most of the people did not see that as importance intervention for nourishment. Attitude was also significantly associated with practice and therefore people who have better attitude on diarrhea will have good practice in prevention of diarrhea in their under-five children. For correlation to represent the degree of association between Knowledge and Practice as well as Attitude and Practice, there was a weak positive correlation between knowledge and prevention practice of diarrhea and there was also as weak positive correlation between attitude and prevention practice of diarrhea.

6.2. Limitation

Due to having short period to survey the children, there might have under-reporting or recall bias of diarrhea morbidity. The result could not be assumed as a general to all in Myanmar because child's condition, mother's behavior and hygiene and health services utilizations were different from place to place.

Young mothers who were working were hardest to reach because they had very little or no free time for interviews or activities as they usually worked from 7

a.m. until 6 p.m., with no days off unless granted special permission from their employer. The only time the researcher could meet with the participants was 7 p.m. and onwards.

There was a lack of statistical information regarding migrant populations and, though the needs were great and visible, quantifying the problems remained a barrier to analysis.

There were also many delays that were both seasonal and unpredictable such as, flooding, deportations of undocumented migrants, arresting migrant workers with invalid documents and civil unrest interrupting the times of primary survey and data collection.

6.3. Recommendation

1. Increasing the number of registration status

According to this study results, it is known that only 78.6% in 112 participants have valid registration status. By improving the number of migrant's registration as well as reducing the cost of registration, practice of prevention of diarrhea will be better for they can access more health care services.

2. To lower the cost of non-local health insurance cost

Unlike the local Thai people, the cost of health insurance for migrants is much higher. As most of the Myanmar migrants took part in this research were not earning mush money, they could not afford to get that. It will be a great pleasure

and enable to take care to their health more if the migrants are under the coverage of 30 Baht scheme which is a great one.

3. Offering other knowledge apart from infectious diseases

After this study, some parts of issues come to appear that there are still many things to give health education in that area. Family planning, increasing awareness of traffic and work related accidents, behavioral changes on consuming alcohol and cigarettes, etc., are needed to develop and take control actions.

6.3.1. Recommendation for further researches

Nearly all the migrants were flexible and responded well to the interviewers. But most of them were workers and doing hard work during daytimes. It is recommended that interview time should be arranged in their free times and so that they can answer voluntarily.

Qualitative study on health care seeking behaviors in migrant mothers when their children got illness should be carried out. Some quantitative study like contraceptive usage, alcohol usage and work related stress can be done. Further studies should actively search matters about preventive behavior of infectious diseases depending on the nature of participants and health problems.

There were still unexplored areas around Mae Sot for researches and due to the lack of relationships with the local authorities of those areas with the researcher could not get to those places.

6.4. Expected benefit and application

It was sure that knowledge can be delivered to the mothers about preventing diarrhea in their children. This study was expected to give the baseline data on the patterns of prevention of diarrhea in the migrant children under five years in Mae Sot District. The result could support data for making further intervention and strategy in decreasing diarrhea and under-five mortality as well in Migrants.

7. Time schedule

Research Activities	Time (Months)											
	1	2	3	4	5	6	7	8	9	10	11	12
Literature review	■	■	■	■								
Writing thesis proposal			■	■								
Proposal exam Submit				■								
Proposal Exam					■							
Proposal Revision					■	■						
Ethical Consideration							■	■				
Data collection								■				
Data analysis									■	■		
Thesis writing									■	■	■	
Final thesis Exam												■

APPENDIX A

Patient/Participant Information Sheet

Title of Research Project... MATERNAL KNOWLEDGE, ATTITUDE AND PRACTICE OF PREVENTING DIARRHEA AMONG CHILDREN UNDER FIVE IN MIGRANTS IN MAE SOT, TAK PROVINCE, THAILAND.....

Principal researcher's name....Mr.Kaung Myat....position...student.....

Office address..... College of Public Health Science, Chulalongkorn University...

Home address.....521/3-4 Soi Sriayuthaya 2-4, Siriayuthaya Road, Prayatai Distric, Rajthavee, Bangkok 10400

Mobile.....0948073474.....**Email**....kkgmyat89@gmail.com.....

1. You are being invited to take part in this research project. Before you decide to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and do not hesitate to ask if anything is unclear to you or if you would like to have more information. The interviewers will read and explain you if you cannot read. The questionnaires are also conveyed in the comfortable form with the simple words. You will also get a consent form from the researcher concerning with the research.

2. This research project involves "Maternal Knowledge, Attitude and Practice of Preventing Diarrhea Among Children under Five in Migrants in Mae Sot, Tak Province, Thailand".

3. Objectives of the projects is to study the factors influencing the maternal practice of Diarrhea prevention in their under five children, Mae Sot, Thailand

.4. Details of participant.

Characteristics of participant are adult Myanmar migrant mothers, living in Hua Fai Village, Mae Sot, Tak province, Thailand

4.1 Inclusion criteria

- Mothers who have children under five years old

- Myanmar migrant

-Willing to participate

- Respondent mother must has at least one experience of diarrhea in the child

4.2 Exclusion criteria

-Thailand Nationalities

-Mothers who are have sent back their under five children to Myanmar and not living together

-Mother who cannot answer the questionnaires (due to mental and physical problems)

-You are invited in this research because you are one of Myanmar migrant mothers, living in Hua Fai Village, Mae Sot, Tak province, Thailand.

5. The assistant researchers who are health-volunteers from Christian youth association.

The interview time will take about 20-30 minutes. Your information will be kept confidential. In some cases, after the interview, you may be asked for some more information by the researcher/assistant researcher which might take a few more minutes.

6. If you may feel uncomfortable or inconvenient to answer the questions, you can stop answering the questions and withdrawn any time throughout the interview.

7. Your participation in this research project is voluntary and you have the right to refuse this participation or to withdraw at any given time with no harm on your benefit and there will be no adverse impact on you.

8. There is no compensation or payment for participate in the research.

9. Results of the study will be reported as an overall statement with anonymity.

10. You will get a pack of soap and can consult medical condition about your family by the researcher doctor.

11. You are guaranteed to provide with the right information about diarrhea.

12. This is the phone number of the local person to contact any time.

[Stephen (Myanmar) –0892274805]

13. If the researcher does not treat you as stated in the patient's information sheet, you can write a report to the Ethics Review Committee for Research Involving Human Research Subjects, Health Science Group, Chulalongkorn University (ECCU). Institute Building 2, 4th Floor, Soi Chulalongkorn 62, Phyathai Rd., Bangkok 10330, Thailand,

Tel: 02218-8147 Fax:0-2218-8147 E-mail: eccu@chula.ac.th.

APPENDIX B

Informed Consent Form

Title of Research Project MATERNAL KNOWLEDGE, ATTITUDE AND PRACTICE OF PREVENTING DIARRHEA AMONG CHILDREN UNDER FIVE IN MIGRANTS IN MAE SOT, TAK PROVINCE, THAILAND.....

Principal researcher's name....Mr.Kaung Myat....position...student.....

Office address..... College of Public Health Science, Chulalongkorn University...

Home address.....521/3-4 Soi Sriayuthaya 2-4, Siriayuthaya Road, Prayatai Distric, Rajthavee, Bangkok 10400**.....Mobile**.....0948073474.....**Email**....kkgmyat89@gmail.com.....

I understand clearly to the information after being explained by the researcher. I have read about this research; how I have to participate, about the rationale and objectives, about the advantages and disadvantages of this research project.

I will participate in this research with my own decision and the researcher can ask me sets of questions according to this study; about demographic characteristics, knowledge, attitude and practice of prevention of childhood diarrhea.This interview will last about 20-30 minutes and will be asked only once.

I am informed that I can withdraw from this research project at any time without any comments. This condition will not affect to anyone with negative Impacts.The same information sheets will be given as indicated by the researcher. Every personal information will be maintained and kept confidential. All information and results of this study will be represented as anonymous statements.

If I am being asked for doing as mentioned above, I can inform to the Ethics Review Committee Involving Human Research Subjects, Health Science Group, Chulalongkorn University (ECCU). Institute Building 2, 4th floor, Soi Chulalongkorn 62, Phyathai Rd, Bangkok 10330, Thailand, Tel 0-2118-8147, Fax: 0-2218-8147. Email: eccu@chula.ac.th.

I have also given a copy of patient's information sheet and an informed consent form.

Signature(Researcher)	Signature(Participant)	Signature (Witness)
.....	.....	.....

APPENDIX C

Questionnaires

Questionnaires on "Maternal Knowledge, Attitude and Practice (KAP) on prevention of Diarrhea in under five migrant children in Mae Sot, Tak province, Thailand"

By...Mr. Kaung Myat

Part I : Demographic Characteristics

Instruction: The following questions are about demographic information. Please mark ✓ in the brackets ( ). Please also write down in the blank space where provided.

1. What is your age? .....years
2. How many children do you have? .....children
3. What is your youngest child age? .....years.....months
4. Do you breast-feed your youngest child?
   ( )1.Yes ( )2.No
5. Do you have work permit in Thailand?
   ( )1.Yes ( )2.No
6. What is your ethnicity?
   ( ) 1. Burma ( ) 2. Shan ( ) 3. Karen
   ( ) 4. Mon ( ) 5. Others (specify)
7. What is your marital status?
   ( ) 1. Marriage ( ) 2. Divorce ( ) 3. Widowed
   ( ) 4. Separate ( ) 5. Others (specify)
8. What is your highest level of education?
   ( ) 1. Illiterate ( ) 2. Primary school ( ) 3. Middle school
   ( ) 4. High school level ( ) 5.Higher level (Institute)
9. What is your occupation?
   ( ) 1. Housewife ( ) 2. Seller ( ) 3. Factory worker
   ( ) 4. Construction worker ( ) 5. Others (specify)
10. What is your husband's occupation?
    ( ) 1. Laborer ( ) 2. Seller ( ) 3. Factory worker
    ( ) 4. Construction worker ( ) 5. Others (specify)

11. What is your family's average income per month?
    ..... baht per month
12. Is income enough for your family expenses?
    ( ) 1.Always ( ) 2.Sometimes enough ( ) 3.Never
13. How long is your stay in Thailand?
    .....years .....months

14. How is your level of Thai language skill?
    ( ) 1. Cannot speak Thai language
    ( ) 2. Can speak basic Thai Language
    ( ) 3. Can speak Thai language well but cannot read and write
    ( ) 4. Fluent as a Thai native
15. Did your youngest child suffer diarrhea during this two months period?
    ( )1.Yes ( )2. No

PartII : Environment

1. What is the main source of drinking water for members of your household? (Choose only one)

( )1.Piped water ( )2.Open well ( )3.Water from bore-hole
( )4.Lake, pond water ( )5.Stream water ( )6.Purified water
( )7.Others

2. What kind of toilet facility do members of household usually use?(observe)

( )1.Toilet flush to sewer ( )2.Toilet flush to septic tank
( )3.Toilet flush to pit with cover ( )4. .Toilet flush to pit without cover

3. How is the method of waste disposal in your house?(observe)

( ) 1.Sanitary ( ) 2.Poor ( ) 3.Dumping

4. Overall, how satisfied is your family with your CURRENT sanitation situation?

( )1. Generally satisfied ( )2.Somewhat ( )3.Dissatisfied

Part III : Knowledge about Diarrhea

Instruction: The following questions are about knowledge on diarrhea in children. Please mark ✓ in the column and the brackets ( ) for the best answer only.
YES = Y, NOT SURE = NS, NO = N

1. How can you explain diarrhea? (Please answer all)

	Y	NS	N
Passage of liquid stool once in a day			
Passage of semi-solid or liquid stools thrice or more in a day			
Sometimes, blood can be present in the stool			
Fishy smell is present in some diarrhea			

2. Do you know what the causes of Diarrhea are? (Please answer all)

	Y	NS	N
Drinking Contaminated Water			
Eating Contaminated food			
Insect Bite			
Well cooked food			
Poor personal Hygiene			

3. Which of the followings are the symptoms of diarrhea in children > 2 years? (Please answer all)

	T	NS	N
Frequent formed stool			
Frequent loose, watery stool			
Abdominal pain			
Fever			
Mouth pain			
Vomiting			

4. Which of the followings can prevent diarrhea in children?
(Please answer all)

	Y	NS	N
Vaccination of measles & rota vaccines			
Vitamin A Supplementation			
Complementary feeding after 6 months			
Giving formula powder milk			
Exclusive Breast-feeding up to 6 month			
Giving Natural Cow's Milk			

5. Who is providing water at the source?

( )1.Authority ( )2.NGO ( )3.Private operator
( )4.Make myself ( )9.Don't know

6. Drinking water source (e.g. well) should be more than 10 meters away from source of pollution(e.g.; toilet).

( )1.Yes ( )2.Not sure ( )3.No

7. What ways you should do to make drinking water safe to prevent diarrhea?

	Y	NS	N
Boiling			
Embedded in Soil with Big Pots			
Chlorinating			
Filter with Cloth			
Alum Potash			

8. When do you should wash hands with soap to prevent diarrhea?

	Y	NS	N
Before cleaning up a child			
Before feeding a child			
After feeding a child			
Before cooking			
After cooking			
Before using toilet			

9. What you should do when your child's diarrhea does not stop?(Please choose more than one)

	Y	NS	N
Nothing, no treatment			
Take to a clinic / doctor			
Give medicine at home			
Give oral rehydration salts			
Visit traditional healer			

10. Which of the followings are danger signs of childhood Diarrhea? (Please answer all)

	Y	NS	N
Restlessness			
Red eyes			
Drinking Too much water			
Cold extremities			
Depressed anterior forehead in infants			
Vomit a lot			

11. Do you have any experience of making oral rehydrated salt solution by yourself at home?
    ( )1.Yes ( )2.No
12. Do you have a packet of oral rehydration salt (ORS) at home?
    ( )1.Yes ( )2.No
13. Do you know a place near your house where you can get/buy ORS packets?
    ( )1.Yes ( )2.No
14. Over hydration is also dangerous. Which one will tell you that your child is having too much? (Please answer all)

	Y	NS	N
Child becomes irritable			
Cry a lot			
Eyes of the child become puffy.			
Reduced breathing			
Seizures			

15. How will you rehydrate the diarrhea child to prevent vomiting?

	Y	NS	N
Increase amount, Increase frequency			
Increase amount, Decrease frequency			
Decrease amount, Increase frequency			

16. What is the best way to dispose your child's stool? (Please answer all)

	Y	NS	N
Leave it in an open field			
Bury the stool			
Dispose in latrine			
Throw it into garbage			

Part IV . Attitude towards Diarrhea

Instruction: The following questions are about attitude towards diarrhea. Please mark √ in the column and the brackets ( ) for the best answer only.

1. Do you agree that Diarrhea is one of the illnesses?
   ( ) 1.Aagree ( ) 2.Neutral ( ) 3.Disagree
2. Do you think your older children can look after the diarrhea child at home when you go to work?
   ( ) 1.Agree ( ) 2.Neutral ( ) 3.Disagree
3. Do you think diarrhea can be life-threatening?
   ( ) 1.Agree ( ) 2.Neutral ( ) 3.Disagree
4. Do you think rehydration with ORS in Diarrhea child can reduce frequency of severe diarrhea?
   ( ) 1.Agree ( ) 2.Neutral ( ) 3.Disagree

5. What is in your mind to determine condition of children under five concerning with diarrhea? (Please answer all)

	Agree	Neutral	Disagree
I think children are more likely to get diarrhea than adults			
I think children under five in my house are healthy so could fight off diarrhea without doing anything			
I think Diarrhea is a cleansing of the body in children under five			
I think Diarrhea is a normal part of growing up in the children under five			

6. Which ones do you think can replenish losses in diarrhea? (Please answer all)

	Agree	Neutral	Disagree
Drinking Water			
ORS			
Orange juice			
Soup			
Coffee			

Part V : Practice on prevention of Diarrhea

Instruction: The followings questions are about practice on prevention of Diarrhea in under five children. Please mark √ in the brackets ( ) and the column.

1. What do you do when your child has diarrhea?(Please answer all)

(a) If over 5 times in a day?

	Always	Sometimes	Never
Nothing, no treatment			
Take to a clinic / doctor			
Give medicine at home			
Give oral rehydration salts			
Visit traditional healer			

(b)If less than 5 times in a day?

	Always	Sometimes	Never
Nothing, no treatment			
Take to a clinic / doctor			
Give medicine at home			
Give oral rehydration salts			
Visit traditional healer			

2. Can you tell me how often you washed your hands? (Please answer all)

	Always	Sometimes	Never
Before using toilet			
After cleaning up a child			
Before feeding a child			
After feeding a child			
Before preparing food			
After preparing food			

3. What are the main REASONS that you WASH your HANDS? (Please answer all) {This question will access attitude.}

	Always	Sometimes	Never
Remove Dirt/Fomite/Food			
Kill Germs/Be Healthy			
Appear Clean/Decent			
Give respect to another person			
Because of bad smell			
No reasons			

4. Is there a place for washing hands?(observe)

( )1.Yes ( )2.No

5. Is there a soap in the place they wash hands?(observe)

( )1.Yes ( )2.No

6. Do you wash vegetables and meat before cooking?

( )1.Always ( )2.Sometimes ( )3.Never

7. Do you usually cover food in order to prevent flies? (observe)

( )1.Yes ( )2.No

8. Do you treat your drinking water safe to drink?

( )1.Yes ( )2.No

9. If "YES", what do you usually do to make the water safer to drink? (Please answer all)

	Always	Sometimes	Never
Boiling			
Chlorinating			
Filter using ceramic filters			
Placing Under Sunlight			
Stand and settle itself			
Filter with cloth			

9.1.Why do use this method for making water safer? (Choose only one)

	Always	Sometimes	Never
.Cost			
Don't Know other method			
Effective			
Easy to do			
No reason			

10. Do you cover the container that store water for drinking?(observe)

( )1.Yes ( )2.No

11. Do you store water for drinking separately from water for other domestic purposes?(observe)

( )1.Yes ( )2.No

12. Do you treat your child yourself when he/she gets diarrhea?

( )1.Always ( )2.Sometimes ( )3.Never

If you do, what do you give? (Please answer all)

	Always	Sometimes	Never
Medicine			
Anti-diarrheas			
ORS			
Traditionally			
Only water			

13. How often do you change the Diaper or clothes during the times of Diarrhea in a day?
    ( )1.Every time ( )2.several times ( )3.Once ( )4.Never
14. During this last episode of diarrhea, did you offer him/her more to drink, about the same, or less than usual? (Choose only one)
    ( )1.Less ( )2.Same ( )3.More
15. During this last episode of diarrhea, did you offer him/her more to eat, about the same, or less than usual? (Choose only one)
    ( )1.Less ( )2.Same ( )3.More

16. Do you have toilet in your house?(observe)
    ( )1.Yes ( )2.No
17. Rating of your latrine in terms of: (Rate by researcher)

	Good	Fair	Poor
Cleanliness?			
Privacy?			
Convenience?			

18. Is well in your house far from toilet?
    ( ) 1.Far (>10 m) ( ) 2.A bit far (>5 m) ( ) 3.Near (<5 m)
19. How young children in your house are defecating?

	Age of child	Always	S/times	Never
In a pot	< 5yrs			
	>5yrs			
In an open field	< 5yrs			
	>5yrs			
Done in the diaper	< 5yrs			
	>5yrs			
Child uses latrine himself/herself	< 5yrs			
	>5yrs			

THANK YOU FOR YOUR ANSWERS

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APPENDIX

Knowledge Part

Appendix table 1 : Correct Numbers and percentages of answers on Knowledge of prevention on diarrhea in children under five years

	Questions	Number(percentage)
	How can you explain diarrhea?	
K1.1	Passage of liquid stool once in a day	70(62.5)
K1.2	Passage of semi-solid or liquid stools thrice or more in a day	83(74.1)
K1.3	Sometimes, blood can be present in the stool	30(26.8)
K1.4	Fishy smell is present in some diarrhea	90(80.4)
Do you know what the causes of Diarrhea are?		
K2.1	Drinking Contaminated Water	110(98.2)
K2.2	Eating Contaminated food	109(97.3)
K2.3	Insect Bite	62(55.4)
K2.4	Well cooked food	92(82.1)
K2.5	Poor personal Hygiene	99(88.4)
Which of the followings are the symptoms of diarrhea in children > 2 years?		
K3.1	Frequent formed stool	38(33.9)
K3.2	Frequent loose, watery stool	105(93.8)
K3.3	Abdominal pain	98(87.5)
K3.4	Fever	75(67)
K3.5	Mouth pain	44(39.3)
K3.6	Vomiting	96(85.7)
Which of the followings can prevent diarrhea in children?		
K4.1	Vaccination of measles & Rota vaccines	92(82.1)
K4.2	Vitamin A Supplementation	73(65.2)
K4.3	Complementary feeding after 6 months	28(25)
K4.4	Giving formula powder milk	74(66.1)
K4.5	Exclusive Breast-feeding up to 6 month	99(88.4)
K4.6	Giving Natural Cow's Milk	61(54.5)
K7	Drinking water source (e.g. well) should be more than 10 meters away from source of pollution (e.g.; toilet).	63(56.3)

What ways you should do to make drinking water safe to prevent diarrhea?		
K8.1	Boiling	110(98.2)
K8.2	Embedded in Soil with Big Pots	68(60.7)
K8.3	Chlorinating	78(69.6)
K8.4	Filter with Cloth	31(27.7)
K8.5	Alum Potash	35(31.3)
When do you should wash hands with soap to prevent diarrhea?		
K9.1	Before cleaning up a child	108(96.4)
K9.2	Before feeding a child	110(98.2)
K9.3	After feeding a child	98(87.5)
K9.4	Before cooking	103(92)
K9.5	After cooking	101(90.2)
K9.6	Before using toilet	94(83.9)
What you should do when your child's diarrhea does not stop?		
K10.1	Nothing, no treatment	108(96.4)
K10.2	Take to a clinic / doctor	110(98.2)
K10.3	Give medicine at home	60(45.5)
K10.4	Give oral rehydration salts	103(92)
10.5	Visit traditional healer	40(35.7)
Which of the followings are danger signs of childhood Diarrhea?		
K11.1	Restlessness	99(88.4)
K11.2	Red eyes	10(8.9)
K11.3	Drinking Too much water	102(91.1)
K11.4	Cold extremities	100(89.3)
K11.5	Depressed anterior forehead in infants	76(67.9)
K11.6	Vomit a lot	106(94.6)
K12	Do you have any experience of making oral rehydrated salt solution by yourself at home?	Yes=7(6.3) No=105(93.8)
K13	Do you have a packet of oral rehydration salt (ORS) at home?	Yes=38(33.9) No=74(66.1)
K14	Do you know a place near your house where you can get/buy ORS packets?	Yes=108(96.4) No=4(3.6)

Over hydration is also dangerous. Which one will tell you that your child is having too much?		
K15.1	Child becomes irritable	75(67)
K15.2	Cry a lot	40(35.7)
K15.3	Eyes of the child become puffy.	67(59.8)
K15.4	Reduced breathing	71(63.4)
K15.5	Seizures	75(67)
How will you rehydrate the diarrhea child to prevent vomiting?		
K16.1	Increase amount, Increase frequency	67(59.8)
K16.2	Increase amount, Decrease frequency	64(57.1)
K16.3	Decrease amount, Increase frequency	93(83)
What is the best way to dispose your child's stool?		
K17.1	Leave it in an open field	111(99.1)
K17.2	Bury the stool	89(79.5)
K17.3	Dispose in latrine	111(99.1)
K17.4	Throw it into garbage	101(90.2)

Attitude Part

Appendix table 2: Correct Numbers and percentages of answers on Attitude of prevention on diarrhea in children under five years

	Questions	**Number (percentage)**
a 1	Do you agree that Diarrhea is one of the illnesses	110(98.2)
a 2	Do you think your older children can look after the diarrhea child at home when you go to work?	110(98.2)
a 3	Do you think diarrhea can be life-threatening?	105(93.8)
a 4	Do you think rehydration with ORS in Diarrhea child can reduce frequency of severe diarrhea?	94(83.9)
What is in your mind to determine condition of children under five concerning with diarrhea?		
a 5.1	I think children are more likely to get diarrhea than adults	111(99.1)
a 5.2	I think children under five in my house are healthy so could fight off diarrhea without doing anything	76(67.9)
a 5.3	I think Diarrhea is a cleansing of the body in children under five	88(78.6)
a 5.4	I think Diarrhea is a normal part of growing up in the children under five	75(67)

Which ones do you think can replenish losses in diarrhea?		
a 6.1	Drinking Water	87(77.7)
a 6.2	Oral rehydration salt	111(99.1)
a 6.3	Orange juice	21(18.8)
a 6.4	Soup	68(60.7)
a 6.5	Coffee	20(17.9)
What are the main REASONS that you WASH your HANDS?		
a.p.3.1	Remove Dirt/Fomite/Food	81(72.3)
a.p.3.2	Kill Germs/Be Healthy	53(47.3)
a.p.3.3	Appear Clean/Decent	82(73.2)
a.p.3.4	Give respect to another person	23(20.5)
a.p.3.5	Because of bad smell	75(67)
a.p.3.6	No reasons	16(14.3)
Why do use this method for making water safer?		
a.p.9.1.1	Cost	7(6.3)
a.p.9.1.2	Don’t Know other method	0(0)
a.p.9.1.3	Effective	90(80.4)
a.p.9.1.4	Easy to do	20(17.9)
a.p.9.1.5	No reason	1(0.9)

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