CHAPTER 1

INTRODUCTION

1.1. Background

Disability is the most important problem in developing countries of the world on both aspects on socio-economic and public health, regarding improvements in child's survival in lower income countries coincide with increasing awareness of child's functional status and childhood disabilities on an individual, family and population as a whole. **(**NSS 58th Round, National Sample Survey Organization new Dehli, 2002;).

Disability is as real fact, affecting major portion of population, disable people represent the marginalized group in Asia and Pacific region. Gender is another issue, in which female with disabilities are mostly excluded from social status in society on discrimination bases as well as being disabled and considered as social stigma. Disable children and younger also face an increasing resistance to participate in education, skill development programs and other social activities. It is also noticed that most disabled person are poor too, but poverty reduction programs include adaptive provision for their participations. (ESCAP: Asia and the Pacific into 21st Century*).

One out of ten persons has some form of disability, 400 million disables in Asia and Pacific region representing two thirds of world disabled population, among them, 80 percent are from rural areas of developing countries of such region. (WHO), it is also worth mentioning here, that such figures are not substantiated by any statistic methods, as collection of such international comparable data on disability is cumbersome.

Disability is changing in its definitions, it was taken as disease or medical issue in the past, especially which is birth related or resulted in injury or medical illness. For

example, inability to walk, or work with hands, or to do normal routine jobs, and it is considered to be of maximum nature if a disable person fails to do normal routine house hold. Rehabilitation process encourages the disables to normal activities or jobs, and covers all academic, work place, social, cultural and other activities within their communities.

The first system; "The International Classification of Impairments" was developed to recognize the influences of individual, social and environmental factors on disability by WHO in 1980, and it has worth mentioning importance for disability policy and research. Rehabilitation process can reduce functional limitations, and social policies can alter environment, such as; cultures, institutions, natural and built infrastructure, thus influencing social and economic opportunities in access of disables. (Metts, R. L,.World Bank, February 2000; p 2.)

WHO classification system uses the following eight categories to define disabilities.
i. Visual impairment
ii. Hearing impairment
iii. Speaking impairment
iv. Physical disability
v. Feeling difficulties
vi. Mental disability
vii. Intellectual impairment
viii. People who have fits

Thus, disability classifications are inconsistent and differ from country to country, survey to survey and type to type, and also some classifications has ignored major disability groups and tend to underestimate the disability prevalence. (ILO, August 2002; p6).

1.2. **Disability prevalence in Thailand**:

Siam (Thai-Sayam), Kingdom of Thailand is a country in the center of Southeast Asia. It has Burma and Laos in the north, Laos and Cambodia in the east, Gulf of Thailand and Malaysia in the South and Andaman Sea and southern extremity of Burma in the west. Maritime boundaries include Vietnam in Gulf of Thailand to southeast and Indonesia and India in Andaman sea to southwest.

Thailand Kingdom has 76 provinces, and grouped into five provinces based on location. There are also two districts; the capital is Bangkok and Pattaya, of which Bangkok is at provincial level and thus often considered as province. Each province is divided into districts, and districts into sub districts, also known as tambons. In 2006, there were 877 districts and 50 districts of Bangkok. The parts of provinces bordering Bangkok are also known as Greater Bangkok. These include; Nonthaburi, Pathum Thani, Samut Prakan, Nakhon Pathom and Samut Sakhon. Capital of province has the same name as the name of province, for example, the capital of Chiang Mai province is Mueang Chinag Mai or Chiang Mai.

Our study focuses on only southern part of Thailand which is divided administratively in following fourteen districts.

   i.   Satun
  ii.   Songkhala
 iii.   Surat Thani
 iv.   Trang
  v.   Yala
 vi.   Chumphone
vii.   Karbi

viii.   Nakon Si Tarammat

ix.   Narathaiwat

x.   Pattani

xi.   Phang- nga

xii.   Phatthalung

xiii.   Phuket

xiv.   Ranong

UNICEF survey in collaboration with MICS, Thailand, shows that the percentage of disable children with 2-9 years of age reported by their mothers or caretaker. Of such children, 12.3 percents were have at least one disability, with highest proportion (16.1 percent) were resident of South, and the lowest proportion (7.5 percent) were from the North. There observed differences in educational and socioeconomical status of household's mothers. 15 percents of disable children in 2-9 age groups were reported from uneducated mothers and about 14 percent were reported from poor families; 11.5 percent of 2-9 years old disable children cannot name at least one object, with highest percentage (13.7 percent) were from Central Region including Bangkok, and lowest were from north (9.8 percent). There is higher percentage of disable children in municipal areas (14.1 percent) than in non municipal areas (10.5 percent). 2.9 percent children with impaired speech were in 3-9 years old, with highest proportion in North (3.8 percent), with poor socioeconomical families (3.8 percent) and with uneducated mothers (4.1 percent).

Despite of increasing interest in this field, There is little information about the frequency and condition of disable children in developing countries, According to the UN Convention on the Rights of Persons with Disabilities;

"Disabilities are long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder a person's full and effective participation in society on an equal basis with others". (MICS ,Data Thailand ;2005.) .

This definition of disability is in accordance with UNICEF, and highlights the protection of disable children against discrimination and also focus with the frame work of the International Classification of Functioning, Disability and Health, according to which, disability is considered as an interaction between a personal health and abilities and contextual factors (e.g., social support, cultural perceptions about disability and availability to nutrition and education). In order to improve information on disability and to educate under developed countries on such issue, UNICEF has recommended ten questions screen as an optional module for child disability (panel) in its Multiple Indicator Cluster Survey (MICS) program. (MICS, Data Thailand, survey by UNICEF in 2006).

Most disables are unable to interact with socio cultural, economical, physical and political conditions. Such environmental factors are barriers to disables to participate in the society. Social stigma of disability, poor understanding of abilities, aspirations of disables and in availability of rehabilitation services are barrier factors. Physical environmental factors are suitable for only physically strong persons, while information environmental factors are for mental impaired individuals. (Ibid, Disability Issues in East Asia).

In 1983-1992, the government of Asian and Pacific region, which represent two third of the world's population; in response of the above mentioned situation, proclaimed the unique regional decade, "the Asian and Pacific Decade of Disabled Persons 1993-2002" at the end of the United Nations Decade of Disabled Persons. (World Programme of Action concerning Disabled Persons;).

1.3. Rationale

Disability is the most important problem in developing countries of the world on both aspects on socio-economic and public health. In Thailand the percentage of disabled children aged 2-9 years reported by their mothers or care-takers was 12.3 percent in the whole kingdom with highest proportion in south (16.1 percent). Among such, children's major problems related to disability were delayed learning in comparison to there peers, mentally retarded, dull or slow.

There is little factors related information on the disability development in Thailand's children at Government level. MICS collected data in collaboration with UNICEF, which is important for monitoring the disables in Thailand. MICS report is already published and based on limited analysis of collected data, still leaving much information. The result analysis of MICS data aimed at exploring factors associated with disability development in children's age 2-8 years. The result is useful in making recommendations for policy making and can be adopted by different public sectors and for comparison with surveys and research conducted in any part of the world to improve information in this field.

1.4. Research Question

What factors are significantly associated with disability among children's aged 2-9 years in south of Thailand?

1.5.   Statistical Hypothesis

1   There is no relationship between host factors and disability among children of 2-9 years in south of Thailand.

2   There is no relationship between Agent Factors and disability among children aged 2-9 years in south of Thailand

3   There is no relationship between child's opportunities to learn and disability among children aged 2-9 years in south of Thailand.

4   There is no relationship between Environmental factors and disability among children aged 2-9 years in south of Thailand.

1.5.   Study objectives

1.5.1. General objective

To find out factors which are significantly associated with Disability among children aged 2-9 years in south of Thailand.

1.5.2   Specific objectives

1.   To explore the relationship between Opportunities to Learning and disability among children aged 2-9 years in south of Thailand

2.   To explore the relationship between household socio-demographic factors and disability among children aged 2-9 years in south of Thailand.

3.   To explore relationship between feeding practices and disability among children aged 2-9 years in south of Thailand.
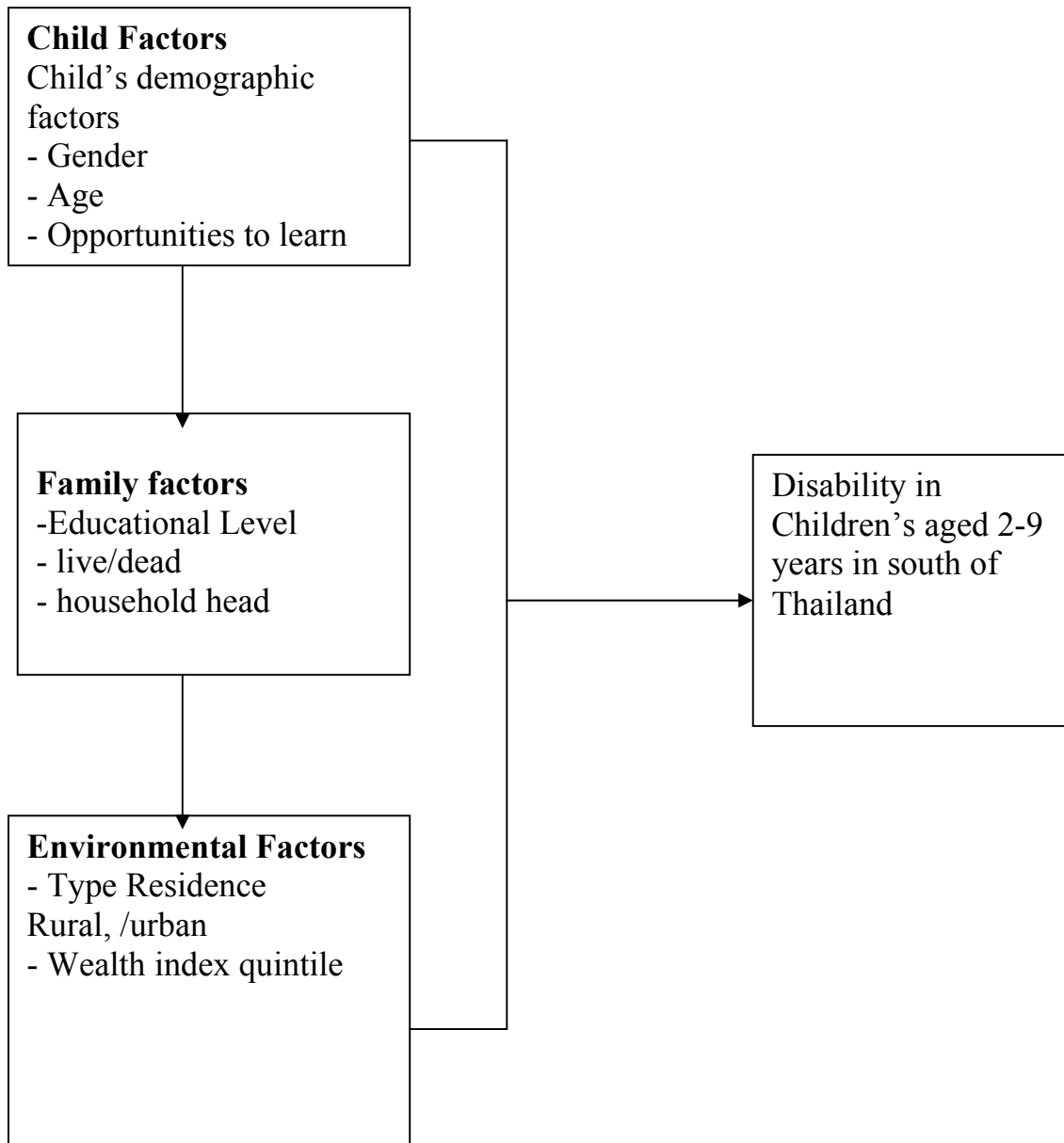
Conceptual framework

```
┌─────────────────────────────┐
│ **Child Factors**           │
│ Child's demographic         │
│ factors                     │
│ - Gender                    │
│ - Age                       │
│ - Opportunities to learn    │
└─────────────────────────────┘
                │
                ▼
┌─────────────────────────────┐          ┌─────────────────────────┐
│ **Family factors**          │          │ Disability in           │
│ -Educational Level          │─────────▶│ Children's aged 2-9     │
│ - live/dead                 │          │ years in south of       │
│ - household head            │          │ Thailand                │
└─────────────────────────────┘          └─────────────────────────┘
                │
                ▼
┌─────────────────────────────┐
│ **Environmental Factors**   │
│ - Type Residence            │
│ Rural, /urban               │
│ - Wealth index quintile     │
│                             │
│                             │
└─────────────────────────────┘
```

Figure 1. Conceptual Framework

Operational definitions

Variables are defined and based on the MICS (Thailand National Statistical Office, 2006; UNICEF, 2006)

Disability: it is defined as visual impairment, hearing impairment and speech difficulty.

Children aged 2-9 years were identified as positive (disabled) if their parents or guardians suggest problem in response one or more of ten questions.

Child factors

i.   Child's age: age in complete years.
ii.   Gender: male or female
iii. Registration status: registered or not registered. (A child was considered registered if he/she had a birth certificate or is registered by civil authorities)

Feeding patterns

i.   Breastfeeding status: based on the report of mother or caretaker of children's consumption in the past 24 hours prior to the interview.
ii.   Exclusive breastfeeding: refers to children who received only breast milk, or breast milk and vitamins, mineral supplements or medicines.
iii. Complementary feeding: refers to children who receive breast milk and solid or semi solid food
iv.   Replacement feeding (weaned): refers to children who were not receiving breast milk

Maternal/caretaker's socio-demographic factors:

i. Age: refers to complete years as at last birthday before the interview
ii. Gender: refers to being either male or female
iii. Education level: classified as none, primary, secondary and beyond.
iv. Number of previous births: refer to all the births a mother had even if the child lived a few minutes.

Household socio-demographic factors

i. Region: a geographical location of household in Thailand, grouped into North, North East, Central (including Bangkok) and Southern.
ii. Residence: a location of a household, classified as either urban or rural
iii. Household wealth index quintiles: classified as poorest, second, middle, fourth and richest.
iv. Number of children 2-9: children in the household of age 2-9 years.
v. Household head's education level: Highest level of Education completed by the head of a household, classified as none, primary and secondary and above.

CHAPTER 11

LITERATURE REVIEW

2.1. Prevalence of Disability

Many studies report that the disability prevalence is higher (1.85%) is higher in rural as compared to urban population (1.5%). According to the study conducted by the National Sample Survey Organization (NSSO) in the India. The census 20012 has estimated prevalence rate of disability in the India as 2.2% of total population. (ICMR Bulletin (Vol.37, No.4-6 April-June, 2007).

Surveys on disability in children, had been carried out in various countries and also according to the Indian Council for Medical Research (ICMR) Task Force, a study was conducted at three centers, namely Delhi, Jaipur, Lucknow. The disability prevalence in children below six years of age was 8.8 per thousand in Delhi, about 6.6 per thousand in Jaipur and 12.6 per thousand in Lucknow. The disability prevalence among children of age 0-6 years had been reported as 1.36% in China (*Zhang*, H., Bo, S.H., Zhang, Z.T., Liu, M., Zhang, Z.X.,Yang China. Biomed Environ Sci 19: 380, 2006.). A study on disabled children in southern Thailand has a prevalence of 1.2%1 (Pongprapai, S., Tayakkanonta, K, Chongsuvivatwong, V. and Underwood, P. study on disabled children in a rural community in southern Thailand).

A study in Saudi Arabian children, less than 16 years of age found with prevalence of handicap as 6.3 % (Al-Hazmy, M.B., Al Sweilan, B. and Al-Moussa, N.B. Handicap among children in Saudi Arabia: prevalence, distribution, type, determinants and related factors. East Mediterr Health J 10: 502, 2004**).** Another study in Saudi population, reported large scale prevalence of child disability among those under 15 years found prevalence rate of major impairment as 3.76 per thousand (Ansari, S.A. and Akhdar,F. Prevalence of child disability in Saudi Arabia. Disabil Rehabil 20: 25, 1998.).

A study conducted in Ghana, reported the prevalence of disability was found to be 1.8 percent in children in a cross sectional survey in Central Region (Biritwum, R.B., Devres, J.P., Ofosu-Amaah, S., Marfo, C. and Essah, E.R. Prevalence of children with disabilities in central region, Ghana. West Afr J Med 20: 249, 2001.). Similar study conducted in Nothern Ethiopia reported disability prevalence as 4.9 percent in children over 5 years of age (Tamrat, G., Kebede, Y., Alemu, S. and Moore, J. The prevalence and characteristics of physical and sensory disabilities in Northern Ethiopia. Disabil Rehabil 23: 799, 2001).

2.2. Risk factors for Disability.

The major contributing factors for development of disability are risk factors. Many studies have been conducted to find such factors; in some studies it was found that following factors were significantly associated with disability.

Following are potential antecedents for disability development among children of age 2-9 years. (Data from third round of UNICEF's Multiple Indicator Cluster Survey 2005 – 06)

   i.   Restricted access to learning opportunities.
  ii.   Nutritional deficiencies.
 iii.   Consequences of discrimination

Fallowing are risk factors for disability.

   i.   A positive history of drug or medicine use by the mother during ante natal period, complications or illness during pregnancy or delivery
  ii.   Complications of children after birth

iii.   Delayed cry at birth

iv.   Delayed milestones

v.   Illiterate mother or father

vi.   Birth orders more than five.

2.3. Etiology of Disability

Numbers of factors are contributing to intellectual disability, e.g., prenatal causes, genetic, congenital malformations and exposure to toxins. Prenatal factors are delivery and infections related, postnatal factors are infections related with childhood and during physical and mental growth of a child. Most of the cases were with unknown etiology (30-50%). Preliminary analyses showed, that the Down's syndrome is most common cause that accounts 5-20% of cases. Prevalence rate vary according to the study population. Congenital hypothyroidism accounts for 1-2% of all cases. Other common causes were birth injuries, low birth weight, birth asphyxia, prematurity, and childhood infections affecting the neurological system (PK Maulik, unpublished data).

2.4. How is disability defined in relation to children?

Same question on disability is generally assumed to be applicable to adults of all ages, according to some evidence, they work less well with the elderly population (Bone and Meltzer (1989) in their discussion of the national survey of disability among children in Great Britain). According to the Bone and Meltzer (Great Britain, 1989) in their discussion, notion about particular age is an inescapable basis for assessment of disability, a very young child can't do the things that an adult can, so questions designed to identify presence or severity of disability in adult are inappropriate for the children. Older child may be able to do some physical work and can be able to perform some tasks of adults such as cooking food or washing clothes but such jobs are not allowed in some culture and are not expected to do so, and so their ability in those activities may be unknown. Games such as running with peers need to perform their normal daily life,

similarly behaviors and problems related to attitudes in children are predominantly different than that of adults as a whole.

In another study by, Westbrook, Silver and Stein (1998), compared different ways of measuring disability among children. They examined the extent of prevalence, estimates and children's characteristics varied by the way that disability is defined. They calculated proportions of disabled children by one particular operationalization of disability based on parental reports of three types of consequences; these were dependence on compensatory mechanisms, functional limitations and service use or need beyond routine. They also mentioned types of child disability as different types of disorder or condition, race, age or socioeconomic status. They analyzed national dataset consisting a random sample of 712 households with 1388 children (Disability among children: a statistical perspective Howard Meltzer Page 1 21/06/2010;).

2.5. Learning disability

A child with a learning impairment, can't work harder, have problem in paying attention or motivational issues, such children need help and assistance to do things normally, learning disability or learning impairment is not a intelligence issue, it is caused by a difference in brain that receives and affect in indifferent manner to the information and process and communicate it differently, and difference in learning arises because of trouble in processing sensory information as they hear, understand and see things in different manner.

Neuroplasticity is advancement in field of science that provides information and understanding of brain's working and a hope to understand learning problem and dealing with such learning disorder. Neuroplasticity refers to the natural ability of brain to change and to establish new connections and new brain cells in response to experience and learning.

2.6. Symptoms and types of learning disabilities and disorders

Children with learning disabilities show some common signs and symptoms, it is very important to pay attention to the developmental period of the children from toddler to preschooler, early diagnosis of such brain developmental issues and early signal of learning impairment and disabilities can be easier, checked and corrected.

A delay in the brain development may not be a symptom of learning disorder until the child is old, intervention can be possible if impairment in brain development is diagnosed at early stage in young children, and pediatrician can also help for evaluation of normal brain development and learning behavior.

2.7. Nutrition and Disability

There is direct and indirect relationship between individual components of nutritional risk and increase severity of disables among diverse and large sample of older adults bound to home. A study including a use of routinely collection of nutrition and function data, indicators of nutritional risk, structural equation modeling of recursive and non recursive models examined the inter relationships of nutritional risk factors and disability severity among 1010 home delivered meals program participants in Wake County, the recursive and non recursive structural models revealed that the specific nutritional risk facts were both directly and indirectly related with indicators of nutritional risk and increased severity of disability. The non recursive model showed significant reciprocal associations of increased disability with change in weight and use of medications. Result from such study acknowledges different aspects of the complex direct and indirect relationships between nutrition and function among older person bound to house. This information will help to develop effective elderly nutritional program with nutritional and functional status outcomes.

Nutrition is related to developmental disabilities with secondary conditions in four following important ways.

i. Nutrition as a risk factor for secondary conditions (e.g., eating habits, poor nutrition or nutritional status)
ii. Nutrition as protective factor. (e.g., good nutrition, nutritional status, or eating habits)
iii. Poor nutrition (e.g., in the form of deficiencies)
iv. Many secondary conditions can further modify the diet and can create subsequent nutritional problems.

2.8. Malnutrition

Malnutrition includes both under and over-nutrition that lead to negative clinical anthropometrical, biochemical, or outcomes for an individual. In 1999, Nutrition was investigated in universal survey of adult consumers of Montana's Developmental Disability Program (DDP) services; survey items were included to determine nutrition, as a risk factor, a protective factor, or a secondary condition.

Poor nutrition as risk factor in such population, observed for following secondary conditions:

i. Weight problems
ii. Bladder dysfunction
iii. Fatigue / lethargy
iv. Bowel dysfunction
v. Depression
vi. Physical fitness/conditioning problems
vii. Dental/oral hygiene problems
viii. Sleep problems/disturbances

May be a risk factor for following identified medical secondary conditions:

i. Gastrointestinal dysfunction

ii. Urinary tract infections

iii. Medication related side effects

iv. Allergies and allergic reactions

v. Cardiovascular/circulatory problems

vi. Diabetes

vii. Osteoporosis

viii. Nutritional deficits

ix. Cancer

Above mentioned list of secondary conditions are associated with under or over nourishment in general US adult population. Over nourishment includes over eating in such a way that lead to cardiovascular problem, cancer, diabetes and under nourishment lead to conditions like anemia and osteoporosis in adults.

2.9. Future directions for epidemiological research

A large proportion of present research on disability is related to the clinical and genetic aspect of disability, there is still lot need to be learned, some direction for future epidemiological research may be the individual studying with disability using longitudinal data that can measure changes across different developmental milestones, including going to schools and doing different work and jobs. Genetics is also a promising area of research in intellectual disability; more information is required from developing countries like Africa, South Asia and Latin America. Some clinic based studies from countries like India, population based epidemiological studies are lacking. Researcher reviewing ID in Africa and Latin America have observed various lacks of legislation, epidemiological studies, infrastructure and expertise to identify, manage and monitor intellectual disabilities and ultimately appropriate rehabilitation facilities in many countries in such regions. (Njenga 2009; Mercadante et al. 2009). This review did

not focus the services research, there more need to learn the factors which are related to service and quality of such services available disability, may be diagnosed at birth or in early childhood. Some may need assistance and care for their whole life and parents provide such care at home. There is more need of research into this field that how best to support these caregivers (Chou et al. 2009).

CHAPTER III
METHODOLOGY

MICS is a household survey programme that was developed by UNICEF to assist with monitoring of the health of women and children in countries with low and middle incomes. It is intended to measure progress towards an internationally agreed set of goals with use of uniform measures across countries... Indicators included in MICS have been selected on the basis of their relevance to international goals for maternal and child health within the Millennium Development Goals, the World Fit for Children Declaration and Plan of Action, the Abuja Declaration of the African Summit on Malaria, and the UN Assembly Special Session on HIV/AIDS.The first round of MICS was undertaken in the mid- 1990s in more than 60 countries. It was followed by a second round of surveys in 2000 in 65 countries, 6 and a third round in 2005–06 in 53 countries. In MICS3 26 countries included some measure of childhood disability. Our study is based on data from 18 countries for which data related to child disability were complete and comparable, rather than a probability sample and, therefore, the results cannot be generalized to countries with low and middle incomes as a whole.

The disability module used in the MICS3, the ten questions, was developed as part of the International Pilot Study of Severe Childhood Disability for use in resource-poor settings. The Ten Questions was designed to be applicable in almost any cultural setting by including questions about a child's functional abilities relative to peers. It elicits parents' perceptions of their children's functioning by asking parents (or other primary caregivers) of children aged 2–9 years ten straightforward yes-or-no questions that screen for Functional limitations in the domains of speech, cognition, hearing, vision, motor or physical, and seizure Disorders. The Ten Questions approach has been the most widely used measure to screen for childhood.

Disability in countries with low and middle incomes, and has been validated as a screen for serious disability in children aged 2–9 years through a series of studies in low-income countries. Results from this screen should not be interpreted as diagnostic; rather, children screening positive to the Ten Questions are considered at increased risk of disability. The usefulness of the Ten Questions is in identification of children at increased risk of disability who are most likely to benefit from referral for professional assessment and rehabilitation.

This study utilized data from the MICS conducted in Thailand by the National Statistics Office of the Ministry of Information and Communication Technology with support from UNICEF from December 2005 to February 2006.We focus our study to the factors associated with disability among children Aged 2-9 years, The variable of host, agent and environment will be chosen to find out new associated factors. The data regarding factors which were described in conceptual framework were analyzed further. Our study focus on disability so we obtain the child factors information from child suvay form and household survey form.and family information from householdform and maternal/care takers information form.The research methodology of the survey has been described as fallows.

3.1 Study design

A Descriptive study design was used for secondary analysis data collected through MICS.

3.2 Study area

Data was collected from all the 76 administrative provinces of Thailand grouped into four geographical regions; North, North East, South and Central (including Bangkok) but we are focusing only the south part of Thailand.

3.3   Study population

The study population was children aged 2-9 years of south Thailand.

3.4   Sampling technique

The primary sample units (PSU) consisted of blocks (in municipal areas) or villages (in non-municipal areas).

The Thailand MICS was carried out by a sample survey method that used a stratified two stage sampling technique with provinces constituting strata. Primary sampling units were blocks in municipal areas or villages in non municipal areas. Sample selection of 33 blocks/villages was done by probability proportional to size. The secondary sample units consisted of collective households systematically drawn from a household listing generated from the 'Basic Household Information Survey'. Data on basic household information from the survey was used as the sampling frame.

3.5   Sample size

The MICS national-level report included 1,449 block/village samples. Thirty collective household samples per block/village samples were selected and a total of 43,470 household samples were obtained.

Our study focus only the southern part of Thailand so we calculated our sample size form the number of children's aged 2-9 years who's Data were available. From that data our sample size becomes 5276 children aged 2-9 years.

3.6   Measurement tools

The variables which were measured and analyzed in this study were selected through the information available for host, agent and environmental factors related to Disability in which three sets of questionnaires were used in the survey.

(1).   A household questionnaire which was used to collect information on all *de jure* household members, the household, and the dwelling;

(2).   A women's questionnaire administered in each household to all women aged 15-49 years;

(3).   2-9 years questionnaire, administered to mothers or Caretakers of all children living in the household.

The three set of questionnaires were based on the English version of the MICS model questionnaire. The model questionnaires were translated into Thai. In addition to the administration of questionnaires, for Disability measured the prevalence and risk factors for disability among children aged 2- 9 years.

3.7   Data collection

In this study we collect the date from MICS data which was available regarding host ,agent and environmental factors related to cause disability among children's aged 2-5 five years in south of Thailand.

The data which was collected by the MICS 2006 in Thailand the methodology they used is as fallows.

Before data collection, a three-day training program was provided by the NSO MICS coordinators and the MoPH to 145 field staff from the North and Northeast regions in Khon Kaen province, and in Krabi province for 160 field staff from the South and Central (including Bangkok) regions.

Provincial Statistical Officers were responsible for the field work undertaken in the other 75 provinces. In each province, data were collected by three teams of four field staff, three interviewers and one supervisor. The NSO MICS coordinators provided overall supervision, with continuous visits to the field. The fieldwork began in December 2005 and concluded in February 2006.

3.8   Inclusion and exclusion criteria

All children aged 2-9 years were included in this study. Children whose data on age was missing were excluded from analysis.

3.9   Data analysis

MICS Thailand data most independent variables and the dependent variable were found or computed/recoded directly in the children data set. Variables of interest which were not contained in the children data set were added to the children data set through merging of the children dataset with the data set that contained the variable (s) of interest. Frequencies and percentages (and mean with SD or median), were obtained for each variable. Bivariate analysis was done using Pearson's Chi-square .

3.10 Study period

The primary study took place from December 2005 to February 2006. This secondary study was conducted between November 2010 and May 2011.

3.11 Study variables

Children aged 2–9 years were identified as positive if their parents or guardians suggested a problem in response to one or more of the ten questions.. All analyses were restricted to children whose disability results were complete. Results for the nutrition, early-learning, and schooling covariates are presented for which data were available. For some analyses, some provinces was excluded because of a high percentage of missing data for the variable in question. Anthropometry and other nutritional variables were assessed only for children younger than 5 years; analyses of Ten Questions screening status by nutritional variables were thus restricted to children aged 2–4 years.

These measurements were not reported and were excluded because of a high percentage of missing data. Questions about early-learning activities in the MICS3 asked whether, in the past 3 days, any household member had engaged each child aged younger than 5 years in any of the following activities: reading books or looking at picture books; telling stories; singing songs; taking outside of the home, compound, yard, or enclosure; playing; or spending time naming, counting, or drawing things. Consistent with UNICEF reports, all districts of southern Thailand were compared Ten Questions screening results for children who participated in at least four of these six activities with those for children participating in fewer than four activities. Parents of children aged 5 years and older were asked about school attendance during the previous year. We assessed Ten Questions screening results by present school attendance status (yes or no) for children aged 6–9 years. Weights were constructed to account for the sampling design in every district. All districts used a multistage, cluster sampling approach and calculated sampling weights on the basis of the inverse probability of selection. Investigators in Thailand standardized (normalized) weights by dividing every household weight by the average household weight.

3.12. The Ten Questions screen for childhood disability.

1. Compared with other children, did he/she have any serious delay in sitting, standing, or walking? (Developmental milestones)

2. Compared with other children doe she/she have difficulty seeing, either in the daytime or at night? (Vision)

3. Does he/she appear to have difficulty hearing? (Hearing)

4. When you tell he/she to do something, does he/she seem to understand   what you are saying? (Comprehension)

5. Does he/she have difficulty in walking or moving his/ her arms Or does he/she have weakness and/or stiffness in the arms or legs? (Movement)

6. Does he/she sometimes have fits, become rigid, or lose consciousness? (Seizure)

7. Does learn to do things like other children his/ her age?   (Learning)

8. Does speak at all (can he/she make himself/ herself understood in words; can he/she say any recognizable words)? (Speech)

9. (a) Ages 3–9 years: his/hers speech in any way different from normal
    (b) Age 2 years: Can he/she name at least one object (animal, toy, cup, and spoon)?
    (Speech and communication)

10. Compared with other children of his/her age, does appear in any way mentally backward, dull, or slow?   (Intellectual impairment)

3.13. Statistical analysis

Descriptive analyses were done to estimate and describe the proportion of children positive to the Ten Questions in every participating district in south of Thailand by covariates of interest, with recommended weights applied. All statistical analyses were done with SPSS (version 16). For individual district results, 95% CIs were generated with the SPSS survey means procedure and accounting for the cluster sampling design, and $\chi 2$ analyses were done to test for between-group differences in percentage of children positive to the Ten Questions. All tests of significance and estimation of variances accounted for the sampling weights and design. Children for whom values for variables in an analysis were missing were excluded from that analysis. This approach assumes that data are missing at random.

After extensive analyses of missing responses, we noted no evidence that missing versus complete disability screening information was correlated with variables of interest, including sex, age, school attendance, or nutritional or early-learning variables. We computed two overall measures incorporating data for all provinces to help to summarize the findings: median values (median of all provinces) and overall pooled values (ignoring weights and with survey responses as a convenience sample). These measures are intended to serve as succinct summaries of the various province results, and not as a global value or representative of any specific population. This research was based on secondary analysis of anonymous data files and was deemed exempt from ethics committee.

CHAPTER IV
RESULTS

This chapter presents the results of the study under the following parts.

1. General characteristics which include
   - Socio-demographic characteristics of households and of caretakers of children aged 2-9 years
   - Socio-demographic characteristics, of children aged 2-9 years.
2. Opportunities to learning of children's
3. Analysis of factors associated with disability in children using Pearson's Chi square and Fisher's exact test.

The flow of information about different variables for age group information.

Household characteristics of children aged 2-9 years in southern Thailand. (N=5276)

Demographic characteristics of children aged 2-9 years in southern Thailand.(N=5276)

Feeding practices among children's aged > 5 years (N=1943).

Opportunities to learning among children have aged 2-9 years in Southern Thailand. (N=5276)

Child attends early childhood education program (N=1283) this data is only for childrens aged 3-4 years.

4.1 General characteristics of children aged 2-9 years

4. 1.1. Household socio-demographic characteristics.

About 43.7% of children that participated in the study were from households located in urban areas and 56.3% of the children's from rural areas .while Yala province having the least number of children (5.6%). A big majority of children (66.4%) belonged to households headed by a Thai speaker or whose head was Thai (98 %). An almost equal proportion of children; 19% and 20 %, were from households belonging to the middle

and fourth wealth index quintiles respectively while 18.4 % belonged to the poorest wealth index quintile households and 24.8% from richest wealth index quintile household.

Majority of children (99.5%) belonged to households whose mother /caretaker completed had completed secondary education with a significant minority (10 %) belonging to households whose head had no education.

Table 1. Household characteristics of children aged 2-9 years in southern Thailand.

Characteristic	Frequency (N=5276)	%
Area		
Urban	2305	43.7
Rural	2971	56.3
Languages		
Thai	3501	66.4
Others	1758	33.3
House hold wealth index quintile		
Poorest	927	18.4
Second	935	17.7
Middle	1003	19
Fourth	1056	20
Richest	1310	24.8
Household head's education level		

None	527	10
Primary	2963	56.2
Secondary +	1761	99.5

4.1.2. Children's demographic characteristics.

Male children were slightly more (52.1%) than female children. The mean age of children was 5.57 with a standard deviation of 2.337. Children aged 2-4 years are 37.1 %. There was a general near equal distribution of children in each 5-7 year of age group (about 35.6 %).

Table 2. Demographic characteristics of children aged 2-9 years in southern Thailand.

Characteristic	Frequency	%
Sex		
Male	2748	52.1
Female	2528	47.9
Age in Years		
2-4	1943	37.1
5-7	1880	35.6
8-9	1441	27.4
Total	5276	100

4.1.5 The feeding practices among children's.

The feeding practices among children aged 02 - 09 years in southern Thailand shows that the children who ever being breast feed are 94.4%. The children who are still being breast feed are 11.5%. Children who received milk are 90.1% as we seen the children who receive vitamins, minerals, supplements or medicines are 18.8% the children who received infant formula are 22.8% and the children who received solid or mushy foods are 87.7%. This data shows that the practice of breast feeding among children aged 02-09 years in southern Thailand is higher. The following table summarizes the feeding practices of children.

Table 5. Showing Feeding practices among children's aged < 5 years.

Characteristics	Frequency (N=1943)	%
Child ever been breastfed	1873	94.4
Child being still breast fed	223	11.5
Child received milk	1750	90.1
Child received vitamin, mineral supplements or medicine	365	18.8
Child received infant formula	443	22.8
Child received solid or mushy food	1704	87.7

4.1.6. Opportunities to learning among children's aged 2-9 years in Southern Thailand

The children who have opportunities to learn are aged 02-09 years in southern Thailand shows that the children who ever have attended early childhood education program are 11.9%. the children who were listen stories from their mother is 23.3% from father 15.3% and from others 11.1% and the children who have never listen stories from no one is 8.5%.

The children who listen songs from their mothers are 25.5%, from their fathers 16.4% from other is 13.2% and from no one 5.4%.

The children who play with their mother are 30.6%, children who play with their father are 25.2%, and who play with others are 19.4% and the children who play with no one are 0.5%.

The following table summarizes the opportunities to learning among children aged 02-09 years in Southern Thailand.

Table 6. Shows Opportunities to learning among children's aged 2-9 years in Southern Thailand

Characteristics'	Frequency	%
Child attends early childhood education program age 3-4 years(N=1283)		
Yes	630	49.1
No	646	50.4
DK	7	.5
Total	1283	
Stories-(N=5276)		
Mother		
Father	1231	23.3
Others	805	15.3
No One	587	11.1
	451	8.5
Songs		
Mother	1344	25.5
Father	805	16.4
Others	696	13.2
No One	283	5.4
Play		
Mother	1613	30.6
Father	1328	25.2
Others	1024	19.4
No One	24	0.5

4.1.7. Prevalence of disability among children's aged 2-9 years in southern Thailand.

The prevalence of disability among children aged 02-09 years in whole southern Thailand is 13%, and if we see the geographic distribution of disability among children of southern Thailand , we find that the highest prevalence is in Pattani province is 28.6% and lowest prevalence of disability is in Phuket province where only 10 cases were found with 1.5% and other provinces like Karbi with 8.2%, Phangnga with 3.1%, Ranong with 8%, Songkhala with 7.9 %, Sutan with 7.9%, Tarang with 15%, Yala with 7.3% and in the Narathiwat province, the prevalence of disability is 12.6%.

Table 7. Prevalence of types of disability among children aged 2-9 years in southern Thailand.

Characteristics	Frequency (N=5276)	%
Any serious delay sitting, standing or walking	48	0.9
Does he have difficulty seeing in daytime or nighttime	20	0.4
Does he appear to have difficulty hearing	22	0.4
When you ask him to do something, does he understand what you say	72	1.4
Does he have difficulty walking or moving	35	0.7
Does he have fits, become rigid or los consciousness	47	0.9
Does he learn to do thing like other	310	5.9
Can says recognizable words	163	3.1
Speech in any way different from normal	102	1.9

Can he name at least one object	102	1.9
Compared to other children does he appear mentally backward,	141	2.7

4.1.8. The proportion of different types of disability in southern Thailand.

According to the MICS Thailand data, children learn to do things like others are 5.9%, which is the highest percentage of disability type, and the lowest type of disability proportion is the child does have difficulty in seen in day time or in night time is 0.04% and the child does have any difficulty in hearing is 0.4%, while the other types of disability like any serious delay in sitting , standing or walking is 0.9%, the children when you asked him to do something, does he understand what you stay is 1.4%, the child does have any difficulty in walking or moving is 0.7%, does the child have fits become ridged or loss of consciousness is 0.9% and the children can say recognizable word is 3.1%, speech in any way different from normal is 1.9%, the child can name any object is 1.9% and compared to other children does he appeared mentally backward is 02.7%.

The following table summarizes the geographic distribution of proportion of disability.

Table 8. Proportion of disability among children's aged 2-9 years in southern Thailand.

Characteristics'	Frequency	%
Karbi	55	8.2
Phangnga	21	3.1
Phuket	10	1.5
Ranong	54	8.0
Songkhala	53	7.9
Satun	53	7.9
Tarang	101	15.0
Pattani	193	28.6
Yala	49	7.3
Narathiwat	85	12.6
Total	674	100.0

4.1.9 Household characteristics and distribution of disability among children's aged 2-9 years in southern Thailand.

As we see that the frequency distribution of disability by different socio-demographic characteristics we found that among total 674 cases of disability the mothers of children's who are alive are669(99.3%).the children's who's fathers are alive are657(97.5%). If we see the educational status of mothers of children's who are disabled we found that mothers with none education are 55(8.2%) only .mothers who has primary education are336(54.3%) and the mothers who has secondary + education level are253 (37.5%).

Fathers of children who has non education are 31(5.6%),children's who's father has primary education are298(53.6%)and the children's who's fathers have secondary+ educational level are227(40.6%). Households head educational level of children who has none education are 76(11.3%),children's who's households head has primary education are395(58.8%)and the children's who's households has secondary+ educational level are227(40.6%).

Table 9 .Household characteristics and distribution of disability among children's aged 2-9 years in southern Thailand.

Characteristics	Frequency	%
Residence		
Urban	231	34.2
Rural	443	65.8
Total	674	100
Sex		
Male	342	51
Female	332	49
Total	674	100
Ethnic group		
Thai	665	98
Others	13	1.6
Total	674	100
Wealth Index quintiles		
Poorest	145	21.5
Second	106	15.7
Middle	145	21.5
Forth	125	18.5
Richest	153	22.7
Total	674	100
Mothers alive	669	99.3
Fathers alive	657	97.5
Mother Education level		
None	55	8.2
Primary	336	54.3

Secondary+	253	37.5
Fathers Education level		
None	31	5.6
Primary	298	53.6
Secondary+	227	40.6
Households Head Education level		
None	76	11.3
Primary	395	58.8
Secondary+	201	29.9

4.2.1 Association of Socio demographic factors and disability among children aged 2-9 years in southern Thailand.

In analysis of associations between socio demographic factors and disability, we found that the residence means, the children belonging to rural areas, are significantly associated with disability with significance level of P.value (0.0003). The association with ethnicity, the result shows the children with disability belong to Thai ethnic group with significance level of P.value (0.002) and when we see the wealth index quintile we found that the percentage of poorest children, who have disability of 14.9 % and proportion is same to middle class with 14.5% and least proportion is found in second class with 11.3%.

There is no any significant association found between children sex and disability with P.value (0.45).

Table 10.Association of Socio demographic factors and disability among children aged 2-9 years in southern Thailand.

Factors	Any Disability		χ2	P Value
	Yes	No		
	N (%)	N (%)		
Residence				
Rural	443(14.9%)	2528(85.11%)	27.884	0.0003
Urban	231(10%)	2074(90%)		
Sex				
Male	342(12.4%)	2406(87.6%)	0.559	0.45
Female	332(13.1%)	2196(86.9%)		
Ethnic groups				
Thai	665(12.7%)	4517(87.3%)	16.492	0.002
Others	13 (15.7%)	70(84.3%)		
Wealth index quintiles				
Poorest	145(14.9%)	827(85.11%)	10.531	0.0321
Second	106(11.3%)	829(88.7%)		
Middle	145(14.5%0	858(85.5%)		
Forth	125(11.7%)	931(88.2%)		
Richest	153(11.7%)	1157(83.3%)		

4.2.2 Association of opportunities to learning and disability

The association between opportunities to learning and disability by doing analyzing different factors the result shows that the children who ever attended school is highly significantly associated with p.value of (0.0003), the children who ever provided by book by mother and father are also highly significantly associated with P.value of (0.0003), and the children who provided with books by no one are also significantly associated with P.value of (0.0003).

The children who were told stories by their mother and fathers are highly significant with P.value of (0.003), the children who listen songs by their mother and father are significantly associated with P.value of (0.0003), the children who play with their mother and father are significantly associated with P.value of (0.0003), the children who play with other are also found to be significantly associated with disability with P.value of (0.0003). the factors who are analyzed for opportunities to learning and disability , it was found that the factors of opportunities of learning play a major role and development of disability.

Table 11. Association of opportunities to learning and disability

Factors	Any disability		X^2	P.value
	Yes	No		
	N (%)	N (%)		
Ever attended school aged 5-9 years (N = 3321)			16.416	0.0003
Yes	321 (10.2%)	2812 (89.8%)		
No	37 (19.7%)	151 (80.3%)		
Book by mother (N=5276)			13.746	0.0003

Yes	463 (11.8%)	3468 (88.2%)		
No	211 (15.7%)	1134 (84.3%)		
Book by father (N =5276)			13.354	0.0003
Yes	522 (12%)	3828 (80%)		
No	152 (16.4%)	774 (83.6%)		
Book by other (N =5276)			0.359	0.549
Yes	582 (12.7%)	4012 (87.3%)		
N0	92 (13.5%)	590 (86.5%)		
Book by no one (N =5276)			13.704	0.0003
Yes	609 (12.3%)	4330 (87.7%)		
No	65 (19.3%)	272 (80.7%)		
Stories by mother (N =5276)			28.495	0.0003
Yes	462 (11.4%)	3583 (88.6%)		
No	212 (17.2%)	1019 (82.8%)		
Stories by father (N =5276)			20.177	0.0003
Yes	432 (11.9%)	3939 (88.1%)		
No	142 (17.6%)	663 (82.4%)		
Stories by other (N =5276)			0.846	0.358
Yes	592 (12.6%)	4097 (87.4%)		
No	82 (14%)	505 (86%)		
Stories by no one (N =5276)			1.187	0.276
Yes	609 (12.6%)	4216 (87.4%)		
No	65 (14.4%)	386 (85.6%)		
Songs by mother			26.424	0.0003

(N =5276)				
Yes	448 (11.4%)	3484 (88.6%)		
No	226 (16.8%)	1118 (83.2%)		
Songs by father (N =5276)			14.768	0.0003
Yes	529 (12.0%)	3882 (88%)		
No	145 (16.8%)	720 (83.2%)		
Songs by other (N =5276)			1.826	0.177
Yes	574 (12.5%)	4006 (87.5%)		
No	100 (14.4%)	596 (85.6%)		
Songs by no one (N =5276)			0.114	0.735
Yes	636 (12.7%)	4357 (87.3%)		
No	38 (13.4%)	245 (86.6%)		
Play by mother (N =5276)			22.461	0.0003
Yes	415 (11.3%)	3248 (88.7%)		
No	259 (16.1%)	1354 (83.9%)		
Play by father (N =5276)			20.248	0.0003
Yes	457 (11.6%)	3491 (88.4%)		
No	217 (16.3%)	1111 (83.7%)		
Play by other (N =5276)			14.239	0.0003
Yes	507 (11.9%)	3745 (88.1%)		
No	167 (16.3%)	857 (83.7%)		
Play by no one (N =5276)			0.002	0.968
Yes	671 (12.8%)	4581 (87.2%)		
No	03 (12.5%)	21 (87.5%)		

4.2. 4. Association of feeding practices and disability

The association of feeding practice and disability are different for different factors, it is found that there is no any significant association between the children who ever being breast fed, with p. value (0.746), the children who ever received vitamins, minerals, supplements or medicines are not significantly associated with P.value of (0.829), the children who receive infant formula are not significantly associated with P.value of (0.390), the children who receive milk are not significantly associated with P.value of (0.0985). The only factor of feeding practices which is associated with disability, the children who receive solid or mushy food is highly associated with P.value of (0.0003) which shows that the children who never received solid or mushy food are found to be more disabled.

Table 14. Association of feeding practices and disability aged 2-4 years.

Factors	Any disability		X^2	P.value
	Yes	No		
	N (%)	N (%)		
Child ever being breast fed. Aged 2-4 years (N =1943)			5.504	0.746
Yes	295 (15.8%)	1578(84.2%)		
No	17 (25.8%)	49 (74.2%)		
Don't know	0 (0%)	04 (100%)		
Child still being breast fed. (N =1943)			25.68	0.0003
Yes	234 (14.2%)	1416(85.8%)		
No	61 (27.4%)	162 (72.6%)		
Missing data for 70 children's				
Child ever received vitamins,minerals supplements or medicines (N =1943)			2.672	0.828

Yes	51 (14%)	314 (86%)		
No	261 (16.6%)	1311(83.4%)		
Don't know	0 (0%)	06 (100%)		
Child received infant formula (N =1943)			0.881	0.390
Yes	75 (16.9%)	368 (83.1%)		
No	237 (15.8%)	1260 (84.2%)		
Don't know	0 (0%)	03 (100%)		
Child received milk (N =1943)			1.088	0.985
Yes	278 (15.9%)	1472 (84.1%)		
No	34 (17.9%)	156 (82.1%)		
Don't know	0 (0%)	03 (100%)		
Child received solid or mush food (N =1943)			37.98	0.0003
Yes	242 (14.2%)	1462 (85.8%)		
No	70 (29.8%)	165 (70.2%)		
Don't know	0 (0%)	04 (100%)		

CHAPTER V

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. Discussion

This study examined factors associated with disability among children's aged 2-9 years in southern Thailand using data from the MICS conducted from December 2005 to February 2006.

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

5.1.1. Prevalence of disability in children

5.1.2. Association between household socio-demographic factors and disability in children in Southern Thailand

5.1.3. Association between child's demographic factors and disability in children in Southern Thailand

5.1.4. Association between child's nutritional status; feeding practices, and disability in children in Southern Thailand.

5.1.5. Association between child's opportunities to learning and disability in children in Southern Thailand

5.1.1 Prevalence of disability in children

The prevalence of disability in southern Thailand is 13%, which is lower as compared to analyses result of ministry of public health and MIC Thailand, which shows 16%, while in our study, the data is available for 10 provinces only and there are 14 provinces in southern Thailand, the data of 4 provinces are still missing.

In this southern Thailand, the geographical distribution of disability shows that the highest prevalence is in district Pattani with total of 193 cases with percentage of 28.6% of all cases and lowest prevalence is found in Phuket province with only 10 cases

with 1.5%, there is no any study which is specifically done for prevalence of disability of southern Thailand but if we compare it with MIC survey of whole Thailand, which shows that the 16% of prevalence of disability in southern Thailand is 16%. Other provinces like Thrang, the prevalence of disability is 15% and if we compare it with Narathiwat where prevalence is 12.6%, which lies close to each other, in province of Yala, the prevalence of disease is 7.3%, in Satun 7.9% and in Songkhala is 7.9%. other studies regarding prevalence of disability shows that in Albania, the prevalence of disease 16% in Bangladesh the prevalence of disability is 21% which is little bit higher, some studies shows that the highest prevalence of disability is found in Central African Republic, where prevalence of disability is 44%, as compared to Uzbekistan where prevalence is only 3%.

5.1.2. The prevalence of types of disability

The MIC Thailand data which includes 10 question screening for disability, according to these any one is found positive is considered to be the case of disability, the result shows that the children who have any serious delay in sitting, standing or walking (0.9%), the children who have difficulty in seeing during day time or night time (visual are 0.4%), the children who have difficulty in hearing are also 0.4%, the children when to asked to do something does he understand what you said are 1.4%, the children who have difficulty in walking or moving are 0.7%, the children who have fits, become rigid or loss of consciousness are 0.9%, the children who cannot learn to do things like other are 5.9%, the children who can say recognizable words are 3.1%, the children whose speech is in anyway is different from normal are 1.9%. the children who can name at least one object are 1.9%, and the children compared to other children does appear mentally backward are 2.7%, in these result we found that the highest prevalent type of disability are those children who cannot learn to do things like other are 5.9% and lowest type of disability.

The lowest type of prevalence of disability are those who are have any difficulty in seeing in day or night time with percentage or 0.4%. It is interesting to note that there is a large variation among countries in terms of the most prevalent types of disability. There may be a link between types of disability and prevalent causes of disability in those countries.

It is recognized that the underlying cause of disability in the region is poverty and that over a half of causes are preventable. Nutritional deficiency, landmine explosion, and road traffic accidents are described as major causes of disability in the EAP region. In terms of gender difference, men tend to have more mobility disability compared to women, and men are more disabled due to war-related causes and accidents. There is no clear evidence that more men are disabled than women in the region. It is also clear that old age increases disability. However, rapid urbanization in the region will lead to a more balanced population of disabled persons between urban and rural areas by 2020.

The prevailing attitude towards persons with disabilities in the region is one of pity as they are often considered helpless having no capacity to develop. Disabled children are viewed as punishment for family misconducts. Negative views and negative attitudes toward persons with disabilities constitute large social barriers for persons with disabilities. Yutaka Takamine (World Bank report2004.)

According to the National Sample Survey Organization (NSSO) Survey-20021, the prevalence of disability in India has been estimated as 1.8%. About 10.63 % of The disabled persons suffered from more than one type of disabilities and 8.4 and 6.1% of the total households in rural and urban India respectively have at least one disabled person. The prevalence of disability has been reported to be higher (1.85%) in rural compared to urban population (1.5%) according to the NSSO Survey. The census 20012 has estimated prevalence rate of disability in India as 2.2% of the total population. (NSS 58th Round, National Sample Survey Organization, New Delhi, 2002.)

Another large scale prevalence study of child disability among those less than 15 years conducted in a representative Saudi population found prevalence rate of major impairment as 3.76 per thousand.

Prevalence of disability in children in a cross sectional survey in Central Region, Ghana was found to be 1.8%.Similarly a study carried out in children over 5 years of age in Northern Ethiopia reported prevalence of disability as 4.9%. There is a growing recognition in all developing countries of the importance of early identification and intervention for disability in infants and young children and involvement of the family in the prevention of disability.(Tamrat, G., Kebede, Y., Alemu, S. and Moore, J. The prevalence and characteristics of physical and sensory disabilities in Northern Ethiopia Disabil Rehabil 23: 799, 2001.)

5.1.3 Household socio-demographic factors with statistically significant Association with disability in children aged 2-9 years

Household socio-demographic factors can bear significant impacts on disability in children. Being a non Thai speaker can result into lower access to all types of public services (especially those related to preventive behaviors) due to communication barrier. The disadvantage of being a non Thai citizen is lower access to all types of public services due to lack of rights under Thai laws. Lack of access to preventive health messages and limited rights to access services can be risk factors of morbidity in the affected population. This study found significant association between disability and household head's language and ethnicity by Chi-square analysis.

In analysis of associations between socio demographic factors and disability, we found that the residence means, the children belonging to rural areas, are significantly associated with disability with significance level of P.value (0.0003). The association with ethnicity, the result shows the children with disability belong to Thai ethnic group

with significance level of P.value (0.002) and when we see the wealth index quintile we found that the percentage of poorest children, who have disability of 14.9 % and proportion is same to middle class with 14.5% and least proportion is found in second class with 11.3%. There is no any significant association found between children sex and disability with P.value (0.45).

According to the MICS Thailand data, children learn to do things like others are 5.9%, which is the highest percentage of disability type, and the lowest type of disability prevalence is the child does have difficulty in seen in day time or in night time is 0.04% and the child does have any difficulty in hearing is 0.4%, while the other types of disability like any serious delay in sitting , standing or walking is 0.9%, the children when you asked him to do something, does he understand what you stay is 01.4%, the child does have any difficulty in walking or moving is 0.7%, does the child have fits become ridged or loss of consciousness is 0.9% and the children can say recognizable word is 3.1%, speech in any way different from normal is 1.9%, the child can name any object is 1.9% and compared to other children does he appeared mentally backward is 02.7%.

A study shows reported disability prevalence rates from around the world vary dramatically, for example from under 1% in Kenya and Bangladesh to 20% in New Zealand. This variation is caused by several factors: differing definitions of disability, different methodologies of data collection, and variation in the quality of study design. The result is that generating disability prevalence rates that are understandable and internationally comparable is a difficult enterprise.

This situation is complicated further by the idea that there is no single correct definition of disability, that the nature and severity of disabilities vary greatly, and that how one measures disability differs depending on the purpose for measuring it. (Bangladesh Bureau of Statistics, Disabled population of Bangladesh, Evidence from

Demographic Sample Survey (1987), Central Bureau of Statistics, Kenya Population Census, 1989, Analytical Report, Vol. IX - Labour forc (1996), and Statistics New Zealand, Disability Counts (1998).

These could be important findings as it might mean equality in health outcomes in terms of diarrhea among children across the country despite the chronic disparities in urban rural health care provision (UNICEF, 2005) and other socio-demographic and economic characteristics.

5.1.4 Association of opportunities to learning and disability

The MICS3 findings provide evidence of an association between child development and exposure to stimulating early-learning activities, such as reading of stories or books and interactive play. In ten provinces of southern Thailand with available data, children who had participated in the greatest number of early-learning activities were least likely to screen positive to the Ten Questions. This result is consistent with previous findings that children who have greatest parental interaction or most stimulating home environments have the best developmental (Especially cognitive) outcomes. A possible alternative explanation is that children who are at risk of disability are excluded from early-learning activities more often than are their non-disabled peers. (Durkin MS. The epidemiology of developmental disabilities in low-income countries. Ment Retard Dev Disabil Res Rev 2002; 206–1124---30)

The association between opportunities to learning and disability by doing analyzing different factors the result shows that the children who ever attended school is highly significantly associated with P.value of (0.0003), the children who ever provided by book by mother and father are also highly significantly associated with P.value of (0.0003), and the children who provided with books by no one are also significantly associated with P.value of (0.0003).

The children who were told stories by their mother and fathers are highly significant with P.value of (0.003), the children who listen songs by their mother and father are significantly associated with P.value of (0.0003), the children who play with their mother and father are significantly associated with P.value of (0.0003), the children who play with other are also found to be significantly associated with disability with P.value of (0.0003). the factors who are analyzed for opportunities to learning and disability , it was found that the factors of opportunities of learning play a major role and development of disability.

The finding in two countries (Ghana and Sao Tome and Principe) that children screening positive for disability were significantly more likely to have taken part in early-learning activities is counter to our expectation and draws attention to a need for further research. Notably, children not attending school were more likely to screen positive for disability than were those attending school in many countries. An implication of this finding is that programmes monitoring the frequency of child disability in countries with low and middle incomes will be incomplete if they rely on ascertainment exclusively through schools. These results also emphasize the possibility that children with disabilities might not have the same opportunities to attend school as do other Children in their communities, and the need to lend support to and promote policies of inclusive education. (Durkin MS. The epidemiology of developmental disabilities in low income countries Ment Retard Dev Disabil Res Rev 2002)

5.2. Conclusion and Recommendations

Findings from secondary data analysis studies are important, as they provide potential directions for further investigation in poorly understood areas and can be used for policy making and problem identification. This study provides a picture of factors associated with disability in southern Thailand.

The study found increased risk of disability among children in households with Thai heads. The children who are from rural areas are more prone to develop disability. An association between disability and household wealth index quintile was observed with children in the poor, middle and fourth wealth index quintiles being at increased risk of disability compared to children in the richest wealth index quintile.

The opportunities to learning was assessed by using ten question about different types of disability and it was found that the children's who have not provided opportunities to learning are at the high risk of disability.

These information's can be used further to investigate more factors related to disability in future and these information can be used by policy makers to overcome the problem and can protect the children's from developing disability.

Limitations of this study include:

Secondary data analysis has many limitations because it completely depends upon available data. Whereas there may be Thai language publications on disability in children, due to language limitation, only articles or documents published in English were reviewed. This might have limited the depth and breadth of literature review and discussion being a study done using data collected through a cross sectional study design, only associations can be made without inferring causality based on the findings of this study, the following recommendations can be made:

Recommendations:

1. Continued efforts to promote opportunities to learning through suitable strategies and policies.

2. Health education to targeted populations to promote opportunities to learning for children.

3. Health education to families to promote opportunities to learning for children's.

4. Interventions which are known to prevent Disability in children should be emphasized more in southern Thailand an in rural areas

5. Further research, in the form of longitudinal studies, is needed to understand the complete dynamics of disability and associated factors.

Appendix A

Time Schedule for Research

Research Activities	Time Frame (Months during 2010-2011)						
	Nov.	Dec	Jan	Feb	March	April	May
Literature review & Conduct draft tool for data collection	▓	▓					
Content validity by experts,Advisors Consideration			▓				
Tools development for data Selection & Try out research tool				▓			
Data analysis and interpretation					▓		
Report writing, Presentation						▓	
Publication							▓

APPENDIX B: Budget

SNo	Activity	Unit Cost	Total Cost/Baht
1	Literature Review	50	2500
2	Traveling Cost	100	10000
3	Data Analysis materials	100	10000
4	Stationary cost	50	5000
5	Miscellaneous Expenses	200	20000
Grand Total = 47500/bhat			