ปัจจัยที่มีอิทธิพลต่อพัฒนาการของเด็ก 3-5 ปี ในศูนย์สุขภาพชุมชนเมืองไพร อำเภอเสลภูมิ จังหวัดร้อยเอ็ด ประเทศไทย

นายยุทธกร เนตรถาวร

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาสาธารณสุขศาสตรมหาบัณฑิต
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ปีการศึกษา 2552

FACTORS AFFECTING DEVELOPMENT OF CHILDREN AGED 3-5 YEARS IN MUANGPHRAI PRIMARY CARE UNIT, SELAPHUM DISTRICT, ROI-ET PROVINCE, THAILAND

Mr.Yuttakorn Netthaworn

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Public Health Program in Health Systems Development
College of Public Health Sciences
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Thesis Title	FACTORS AFFECTING DEVELOPMENT OF CHILDREN AGED 3-5 YEARS IN MUANGPHRAI PRIMARY CARE UNIT SELAPHUM DISTRICT ROI-ET PROVINCE THAILAND
By	Yuttakorn Netthaworn
Field of Study	Health Systems Development
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ยุทธกร เนตรถาวร: ปัจจัยที่มีอิทธิพลต่อพัฒนาการของเด็ก 3-5 ปีในศูนย์สุขภาพชุมชนเมืองไพร อำเภอเสลภูมิ จังหวัดร้อยเอ็ด ประเทศไทย (FACTORS AFFECTING DEVELOPMENT OF CHILDREN AGED 3-5 YEARS IN MUANGPHRAI PRIMARY CARE UNIT, SELAPHUM DISTRICT, ROI-ET PROVINCE, THAILAND) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: Robert Sedgwick Chapman, M.D., M.P.H. 104 หน้า.

การศึกษาเชิงพรรณนาภาคตัดขวางนี้มีวัตถุประสงค์เพื่อศึกษาสถานการณ์พัฒนาการของเด็ก และค้นหาปัจจัยที่มีอิทธิพลต่อพัฒนาการของเด็กของเด็กอายุ 3-5 ปี ในพื้นที่บริการของศูนย์สุขภาพชุมชนเมืองไพร อำเภอเสลภูมิ จังหวัดร้อยเอ็ด จากกลุ่มตัวอย่างเด็กอายุ 3-5 ปี ในพื้นที่ 210 ตัวอย่าง จัดเก็บข้อมูลโดยใช้แบบเก็บข้อมูลที่มีสองส่วน (1) แบบสอบถามซึ่งพัฒนาขึ้นจากคู่มือการดูแลอนามัยแม่และเด็ก คู่มือส่งเสริมพัฒนาการเด็กโดยเจ้าหน้าที่สาธารณสุข และรายงานการวิจัยที่เกี่ยวข้อง แบบสอบถามกำหนดกรอบคำถามถึงปัจจัยที่มีอิทธิพลต่อพัฒนาการเด็ก 3 ด้าน ได้แก่ ก) ด้านข้อมูลส่วนบุคคลและครอบครัว, ข) ด้านประวัติการคลอด ภาวะโภชนาการ และประวัติความเจ็บป่วย และ ค) ด้านสิ่งแวดล้อมที่เกี่ยวข้องกับพัฒนาการเด็ก (2) การประเมินพัฒนาการของเด็กโดยใช้แบบประเมินพัฒนาการเด็กโดยใช้แบบอนามัย'49 ของกรมอนามัย ซึ่งผลการประเมินพัฒนาการมี 2 ระดับ คือ พัฒนาการสมวัย และพัฒนาการล่าช้า ข้อมูลที่จัดเก็บได้ถูกนำมาวิเคราะห์ด้วยสถิติ ความถี่, ร้อยละ, Crosstabs, Chi-square, และ Multiple Logistic Regression, ผลการศึกษาพบว่าเด็ก 3-5 ปีในพื้นที่วิจัย มีพัฒนาการสมวัยร้อยละ 58.1 (122/210) และมีพัฒนาการล่าช้า ร้อยละ 41.9 (88/210) การวิเคราะห์หาปัจจัยที่มีอิทธิพลต่อพัฒนาการของเด็กโดยใช้สถิติ Multiple Logistic Regression 3 ขั้นตอนเพื่อค้นหาปัจจัยที่มีความสัมพันธ์กับพัฒนาการล่าช้าของเด็ก ในขั้นตอนสุดท้ายของการวิเคราะห์ พบว่าปัจจัยที่มีคาดการณ์ว่ามีผลกระทบต่อพัฒนาการของเด็กได้แก่ อายุ (P=0.043) ลำดับที่การเกิด (P<0.001) มารดาได้รับการดูแลครรภ์ตามเกณฑ์คุณภาพ (P=0.011) วิธีการคลอด (P=0.033) การได้รับการเลี้ยงดูด้วยนมมารดาตามเกณฑ์ (P=0.022) การได้รับอาหารเสริมตามวัย (P=0.047) การเจ็บป่วยด้วยโรคที่เป็นอุปสรรคต่อพัฒนาการ (P=0.004) การได้รับหนังสือเด็กอย่างเหมาะสม (P=0.047) การได้รับโอกาสให้แสดงพฤติกรรมที่เหมาะสม (P=0.013) ครัวเรือนบริโภคน้ำดื่มสะอาด (P=0.004) พฤติกรรมสุขวิทยาส่วนบุคคล (P=0.001) จากผลการวิจัย ผู้วิจัยเสนอแนะให้ 1) ครอบครัวและชุมชนร่วมกันจัดบริการดูแลมารดาก่อนคลอดอย่างครอบคลุม 2)กำหนดแนวทางส่งเสริมให้มารดาสามารถเลี้ยงดูบุตรด้วยตนเองให้นานตามเกณฑ์ การจัดหาอาหารเสริมให้แก่เด็กให้เหมาะสมตามวัย 3) และการจัดหาน้ำดื่มสะอาดให้พอเพียง 4) การส่งเสริมความรู้เรื่องพัฒนาการเด็กให้แก่ครอบครัวและชุมชน

สาขาวิชา การพัฒนาระบบสาธารณสุข ลายมือชื่อนิสิต .....

ปีการศึกษา 2552 ลายมือชื่ออาจารย์ที่ปรึกษา.....

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KEYWORDS: CHILD DEVELOPMENT/ DEVELOPMENTAL RISK FACTORS/ ANAMAI'49

YUTTAKORN NETTHAWORN: FACTORS AFFECTING DEVELOPMENT OF CHILDREN AGED 3-5 YEARS IN MUANGPHRAI PRIMARY CARE UNIT, SELAPHUM DISTRICT, ROI-ET PROVINCE. THAILAND
THESIS ADVISER: ROBERT SEDGWICK CHAPMAN, M.D., M.P.H.,104 pp.

This cross sectional-research was intended to characterize the situation of child development, and to investigate the factors associated with development status, in children aged 3-5 years in Muangphrai Primary Care Unit Selaphum District Roi-et Province. 210 participants were studied. Data were collected with 2 forms: (1) A questionnaire that developed by the researcher and based on the Maternal and Child Care Handbook, the Encouragement of Early Child Development Handbook, and the related literatures, the questions measured factors potentially affecting child development (independent variables). These were divided into 3 groups; a) Socio demographic, b) Birth, nutrition and medical history, and c) Developmental history. (2) Using the assessment of child development Anamai'49 that developed by the Department of Health to assess the child development, the assessment had provided child development on 2 ways, either normal development or delayed development. This was the dependent variable.

The collected data were analyzed by the statistics of Frequency, Percentage, Crosstabs, Chi-square, and Multiple Logistic Regression, the research reported that, the children aged 3-5 years in Muangphrai Primary Care Unit were in normal development for 58.1% (122/210), and in delayed development for 41.9 percent (88/210). Data were further analyzed by 3 steps of multiple logistic regression to find what factors were statistically significantly associated with delayed development, In the final logistic model, 11 independent variables showed significant associations. These were age (P=0.043), birth order (P< 0.001), quality of antenatal care (P=0.011), delivery process (P=0.033), child breastfed (P=0.022), supplementary nutrition (P= 0.047), diseases obstructing child development (P=0.004), availability of appropriate books (P=0.047), opportunities encouraging child development (P=0.013), Sanitary drinking water (P=0.001), and hygiene learning and health behavior (P=0.001). These associations were generally in the expected directions.

Based on study results, the main recommendations include: (1) Families and communities should provide the service of antenatal care cover all pregnant women by the standard of the quality of antenatal care process. (2) Plan to encourage all breastfeeding mothers to provide their children the breastfeeding at least the first six months and to support supplementary nourishment to their children appropriately by age. (3) The communities should provide the sanitary drinking water for their children or their people by improve the water supplies to be sanitary to drink. And (4) To promote personal hygiene for children and their families and for all communities.

Field of Study: Health Systems Development Student's Signature .....

Academic Year: 2009 Adviser's Signature .....

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CHAPTER I

INTRODUCTION

Background and rationale

The age of early childhood is the most important age of human life. Most of the growth progress and the human developments are rising on this age. It is a period of the quality foundation of life and the good mind of people when they are adults. Children during this age should be encouraged in good development of physical, emotion, mental and intelligence. Because this period, the brain has topmost progress, and has most of the readiness to learn extremely, However, in the social and economic change in Thailand at the present, many problems affect child development and health. The most important factors obstructing child development and health relate to child care and rearing.

In the Hand Book of Child Development Assessment Anamai'49 that conducted by the Health Promotion Center Region 4 confirmed that delayed development in the children indicates that there are 3 important causes;

1) Children lack the opportunities; All 4 parts of child development as social contact, fine motor skill, language, and gross motor skill, developing to be normal or delayed depend on individual factor of the children and developmental environment. The environment that encourage or promote the family to be in the atmosphere of learning, the children are suspected to be better in normal development. Therefore, if the children lack the opportunities to support or encourage the atmosphere of learning in the family, even although they have the perfect of individual factors, they may not develop normally.

2) Health system in maternal and child care; health workers often do not see that the health system and maternal and child care are the factors that affecting child development, but in the fact they are. Must accept that child development is affected by health system, the raising child development requires professional parents, not intern parents. Teenage pregnancy is increasing nearly 20% in many areas, teenage parents care their children with more problems, health systems must do compensate for this problem.

3) Individual factors of the children; Most people often understand that delayed development caused by irregularities of the children such as Asphyxia in delivery process, genetics diseases that cause delayed development such as Down's syndrome

or other diseases, these factors can affect development truly but do not more than 1) and 2). Also, if in the view of our limited in the individual factors of children that affecting child development, the strategy on child development may be located on the process of encouraging development of the children with delayed development, this is a simply passive strategy. While the children need the aggressive strategy that developed in the maternal and child care program to prepare a good foundation for them, and to develop the preparation of the parents to be the professional parents, to prepare the learning environment for children and bring them the opportunities to learn and to be normal development.

Health System Research Institute of Thailand, (2000) surveyed children aged 0-5 years using the early child health index to indicate child health situation of young children in Thailand, found that there was high morbidity of the respiratory infectious disease especially pneumonia. Pneumonia was still the highest morbidity disease. The institute specified that the causes of pneumonia were air pollution and spread of the disease in the community child care center and the parents with low health self-care particular in the rural areas.

The mortality of the children aged 0-5 years in Thailand was still higher than some countries in South East Asia, such as Malaysia and Singapore. In Thailand, the mortality rate of children aged 0-5 years was 15.7 per 1,000 live birth children. The important causes of the mortality were infectious diseases, the most important infectious diseases were pneumonia, which was high among poor nutrition children in the Northeast. The mortality rates of the children aged 0-5 years is an indicator of proper child care and rearing within family.

The report of health situation of the Ministry of Public Health, the assessment of child development in Thailand by using the child development assessment DENVER II to assess in two years, the situation of child aged 0-5 years development in 1998 and 2006 showed that the normal development situation of children aged 0-5 years in Thailand was decreased from 71.1% in 1998 to be only 67.7% in 2006. And from the research report of Duanghatai Junchua, (2005), studied influencing factors on early child development in the north of Thailand by using the child development assessment DENVER II, found that 65.79% of children aged 0-5 years were in normal development. The children who lived in the rural had high proportion of delayed development compared with the children who lived in the urban.

In addition, the children aged 3-5 years were delayed development more than the children aged 0-2 years.

In the present, the social and economic changes in Thailand affect severely on Thai family life styles, finally, the social and economic changes also affect the development of children aged 0-5 year severely too. The researches reported that the development of children aged 0-5 years was effected by the family factors more than the other factors. Thailand Health Profile reported that, in Thailand, child development was affected by the causes of family life styles as the follows;

1) Thai family structure has become diverse and complex mostly being a nuclear family rather than extended family. The average family size dropped from 3.8 persons per family in 2000 to be 3.4 persons in 2007. The report addressed that the change of family size affects to Thai family's life-style.

2) The parents have decreased times for living together with each the other and their children. Most of the parents in Thailand work for 7-9 hours a day and 43% of the parents feel estranged from their children as they spend only 1-3 hours to take undertaking activities together. Thus there is the lack of family warmth and the family's relationship has become weakened.

3) Child-rearing patterns have changed. Parents would take their children to be cared by the external family members. A survey of The National Statistical Office in 2002 reported that the children aged 3-5 years 53.3per cent were reared at the nurseries or the community child development centers, and only 27.6% were reared by their parents. The results corresponded to the pre elementary school attendance rate among children aged 3-5 years rising from 39.3per cent in 1992 to be 75.0% in 2006. A survey of the Department of Health in 2008 revealed that the community child development centers in Thailand were assured by the specification quality only 46.5%.

4) Thai families spent the money for consuming the anti-healthy goods more than the healthy goods. A survey in 2007 of the Bureau of Policy and strategy, Ministry of Public Health revealed that, the proportion expenses for anti-healthy goods in 2007 was 2.3% and higher than the proportion expenses for healthy goods that was only 2.2%. The majority of all expenses of anti-healthy goods were spent for cigarette and alcohol drinking.

5) The proportion of rural to urban migration was 31.1% of all migrants in 2000, and it was forecasted that 38% of the population would reside in urban areas in 2020. Sutham Nuntamongkolchai et.al,(2001), studied about The parental migration and health status of children aged 1-12 years in Bangkok, Burirum, Phrae, and Saraburi, revealed that the parental migration was statistically significant association with development and child rearing of children. The children who lived in the families with out-migrant parents had higher proportion of delayed development and more poor supportive rearing than the children who lived the in families without parent migration.

6) The age of first sexual intercourse in youth is decreased, the Youth and Family Data Center (2005) surveyed and found that women in Thailand have the first sexual intercourse at the average aged 15.7 years, and have the first newborn at the average aged less than twenty years.

One of the goals of Healthy Thailand Project, Ministry of Public Health, is to encourage the development of children aged 0-5 years. The goal is, the children aged 0-5 years with in normal development would increased to be more than 80%. The Ministry of Public health plans many projects to encourage on child development such as, the Child Development Corner in Public Health Center Project , the project of Family Love Bonding Hospital, the Relationship of Family Project, etc., but in the previous years, these important projects could not succeed in the rural areas, because there were not enough health officers, little knowledge of the rural population, little budget to support the projects, and the rural people thought they have many important problems to solve more than child development problems.

There are many institutes in the community to do the missions of the children aged 3-5 years, for example, the local administration organization (Ministry of Interior), primary school (Ministry of Education), community health center(Ministry of Public Health) or even through at the temple (The Religious Affairs Department). Bureau of Policy and Strategy reported there are total 6 government ministries to be responsible on child development. Look likes it is good that there are a lot of institutes aim to the importance of children, but, when we look at the efficiency, there are many troubles such as, there is no integration of work, there is plenty of overlaps. These might create the waste of everything we invested.

The people who live in the service area of Muangphrai Primary Care Unit are in a similar situation. They are rural people. During the previous years, Muangphrai Praimary Care Unit has serviced the encouragement of child development programs and child health care activities, but most of the activities have been doing to encourage the population in the maternal and child programs. The programs are taken to care the women on pregnancy stage and labor process. While the next stages of child development are taken to care the children only in Well Baby Clinic Program, and there are many barriers that obstruct to succeed the goal of child development. such as, there is only one day per month for Well Baby Clinic Program at the health center, but the health officers are wanted to do to many jobs in the same time of well baby clinic. They must do vaccinations, nutritional examination, child development test, dental health care, health educations, all of the jobs must done by only 1-2 officers on 30-35 children in clinic by only 3-5 hours. The officers have no time to educate the child caregivers and the child caregivers have so busy at their home, they have few time to learn or to listen what an officer want to advice them, they can not study by themselves on the *Maternal and Child Health Handbook*, the hand book is not used by them to guide them to rear their children.

The data showed us what was the status of child development in Thailand, the children aged 3-5 years in Thailand were in delayed development more than the other aged of early children. We found that the children aged 3-5 years were encouraged in child development less than the children aged 0-2 years. The children were reared and cared on only the duration of pregnancy, delivery, post-delivery and only in the first year of age. Therefore, the researcher aims to study on this topic to find what are those influence factors that relate and affect on the development of children aged 3-5 years. The present research is looking forward to understand the situation of child development and what are the ways to go to solve those problems in the service area of Muangphrai Primary Care Unit.

Research Questions

1) What is the situation of the development of children aged 3-5 years in the service area of Muangphrai Primary Care Unit?

2) What are the factors influencing development of children aged 3-5 years in the service area of Muangphrai Primary Care Unit?

Objectives

General Objective

To describe and investigate the factors related to development of the children aged 3-5 years in the service area of Muangphrai Primary Care Unit.

Specific Objectives

1) To characterize the situation of child development of children aged 3-5 years in the service area of Muangphrai Primary Care Unit.

2) To study the factors related with child development that affecting the development of children aged 3-5 years in Muangphrai Primary Care Unit

2.1 Socio demographic factors of the children aged 3-5 years.

2.2 Birth, nutrition, and medical history of the children aged 3-5 years.

2.3 Developmental environment of the children aged 3-5 years.

Measurement

Independent variables

1) Socio demographic factors of the children aged 3-5 years (e.g. sex, age, birth order number, residence area, sized of village, parents' age, parents' education level, main child care giver in the day time, size of family, type of family, family income, access to health care, and access to child development service).

2) Birth, nutrition, and medical history of the children aged 3-5 years (e.g. content of antenatal care, delivery process, term of pregnancy, body birth weight, child breastfed, supplementary nourishment, iodized-salt consuming, diseases obstructing development).

3) Developmental environment of the children aged 3-5 years (e.g. appropriate books for children received, appropriate toys for children received, family activities encouraging child development received, received family opportunities encouraging child development, child rearing patterns, sanitary drinking water, health behavior and hygiene learning in the family, crises in family, child left alone, and family knowledge about child development).

Dependent variable

Child development measured by the Assessment of Early Child Development Anamai'49 (normal development or delayed development).

Conceptual Framework

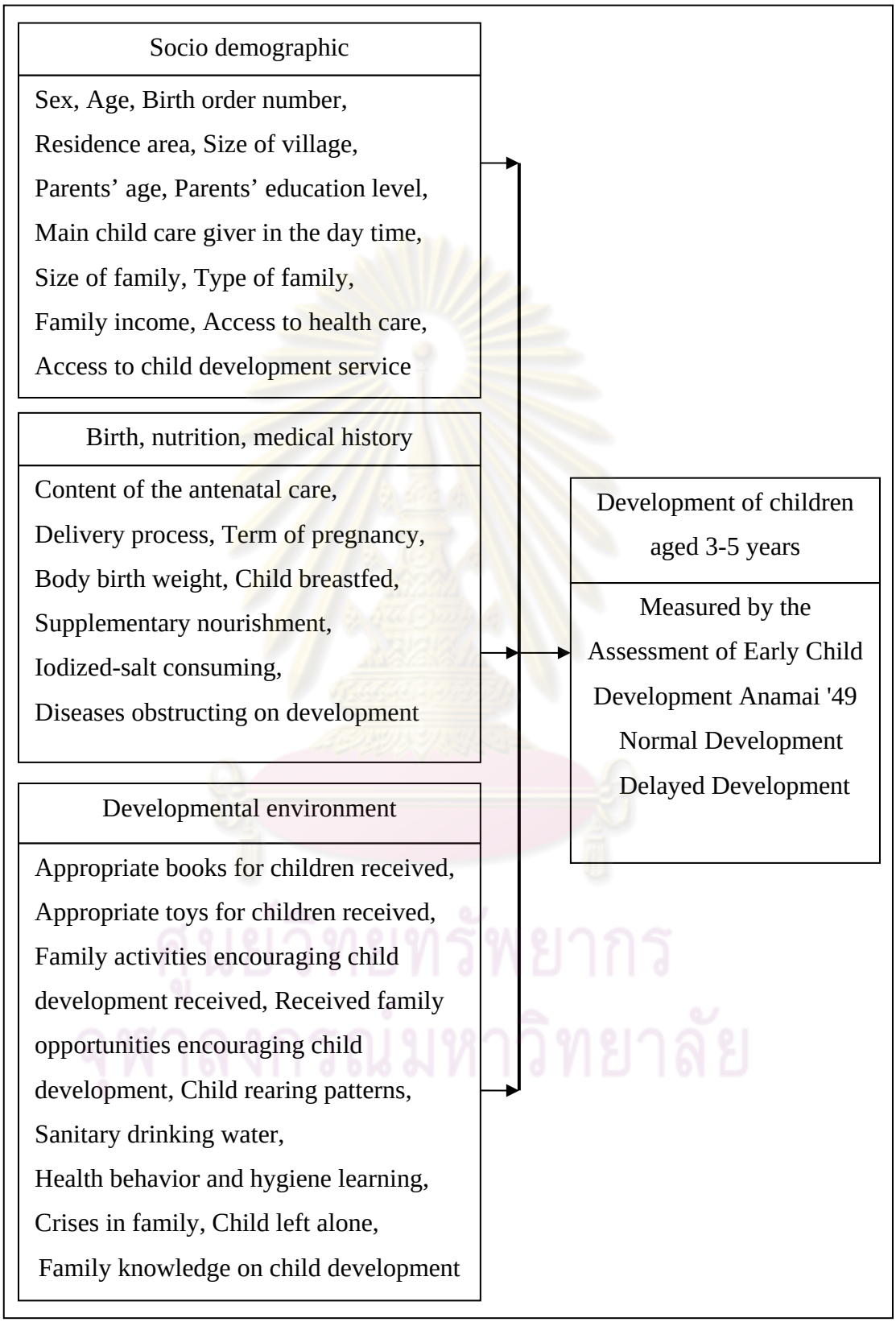

Figure 1: Diagram of Conceptual Framework

Operational Definitions

1) Children aged 3-5 years *means* the children who were born during the 1st October 2002 to the 30th September 2005. All children in this research live in the research area at least 6 months before data collection.

2) Child development *means* the changes of body, mind, language and community, and social of children. Children have continuously developing, with the especial format of development of age, children show one's capability some important parts by the age, may be different least or better. In case of least activity compare with age of children we call that delayed development. In case of the better, we call that normal development. The measurement of child development is explained in the maternal and child care handbook with the ways to encourage on child development that the families can also study.

There are 4 types of measurement on child development;

1) Gross motor development

2) Fine motor adaptive

3) Language and community development

4) Social development

When we assess child development, we often consider how the children have developed by 4 parts of child development called Total Development.

The conceptual framework is based on *the Child Development Handbook for the Public Health Worker* and *the Maternal and Child Care Handbook* and the related literatures. The variables are classified to be 3 groups, Socio demographic, Birth, nutrition and medical history, and Developmental history.

3) Anamai'49 *is* the assessment tool using to assess child development. Anamai'49 was developed by the Department of Health. We use Anamai'49 to measure the development of children aged 0-5 years based on the total child development. This research uses three parts of the assessment, that they are the assessment of the children aged 3 years, 4 years and 5 years development.

Anamai'49 was applied appropriately for Thai children from DENVER II, for suitable and easy to read the basis results, and decrease the complication steps of the assessment of child development of DENVER II, however, compared with the

DENVER II, the results of using Anamai'49 to assess child development are so rough, but it is accepted for its accuracy, and used to be the standard for child development assessment of Ministry of Health.

4) Child's family *means* all of members who live in the same household with the child. There are 2 kinds of family. Nuclear family is the family which the members in the family are father, mother and their children, and the extended family is the family which the members in the family are father, mother, grandfather or grandmother, and their children.

5) Socio demographic factors means the particularities of an individual data of the child, characteristic of family, and social environment data that the children have received, and the researcher supposes to be the factor affecting child development, such as; sex, age, birth order number, residence area, sized of village, parents' age, parents' education level, main child care giver in the day time, sized of family, type of family, and family income.

.**6) Birth, nutrition, medical history** means the particularities of the child which the researcher supposes to be the factors affecting child development, e.g. content of antenatal care, delivery process, term of pregnancy, body birth weight, child breastfed, supplementary nourishment, iodized-salt consuming, diseases obstructing development (such as anemia and thalassemia).

7) Developmental environment means the particularities of an environment and social which the researcher supposes to be the factors affecting child development, e.g. appropriate books for children received, appropriate toys for children received, family activities encouraging child development received, received family opportunities encouraging child development, child rearing patterns, sanitary drinking water, health behavior and hygiene learning in the family, crises in family, child left alone, and family knowledge about child development.

Obstacles and Strategies to Solve the Problems

Using Anamai'49 to assess child development needs care because it is easy to get erroneous results, the assessors must be drill to control the other factors that can infest the assessment. Assessed by Anamai'49, the children need the child care givers to care closely to them to show their latency and developmental behaviors to make the assessors to assess conveniently.

Cross-sectional research is the research to investigate the data in the environment. There are no intervention factors in the research design, study in the rather limited period of time. Operating in the research area which the same society characteristics, and the limited environment, the similar of participate characteristics, the knowledge of this research might be applied to solve the problems in especial area. The researcher must enhance data collecting with specially carefulness.

CHAPTER II
REVIEW OF LITERATURE

Definition of Child Development

1. Meaning and significance

The development of children aged 0-5 years *means* the performing change (function), and maturity (maturation) of the part of portion organ systems that make a person can perform the activities efficiently, can do more the difficult complicated things including, new expansion skills and more ability in the adaptation to live in the environment or the situation on the new context of family and social. Child development assessment can measured by the observation or test their performing ability to compare with the standard value and the child theories**.** The human development is separated to be 5 parts;

1) Psycho-motor development *means* the body ability in balance acting and difference movement.

- Gross-motor is used for the body movements such as, standing, walking.
- Fine motor adaptive is used for the sense abilities such as, using eyes and hands to do coordinate activities.

2) Cognitive development *means* the learning ability to define the relationship of the difference things. Cognitive development using relates with

- Language development
- Fine motor adaptive, such as, using eyes and hands to do coordinate activities to solve problem.

3) Emotional development *means* the expressive abilities to show the emotion in the different situations, such as, self-respect acceptance, self-controlling and appropriate expression.

4) Social development *means* the communicative abilities of human life that developed to relate with the others, to be good skills to live in the social. For children, the social development means the primary ability to be the self assistance in their life.

5) Spiritual development *means* the changes of knowledge abilities to manage the benefit and value of life, the aesthetic, the culture, and the virtue.

Early child development is considered to be the most important phase of human life. To attend the environment of a child and provides high quality child-care

and family support can improve throughout of life. This period of life should receive the promoting physical, mental, and psychological growth of children and preparing them for lives as productive adults by the quality of stimulation, support and nurturance that the child experiences in his or her family, and developmental environments. The unsupportive environments can seriously and irreversibly affect children's development. Evidence shows that early and appropriate policy interventions that address the risk and protective factors for growth, cognitive and social-emotional development of children can improve health, well-being, and competence in the long-term.

2) Measurement of child development

DENVER II was originally designed at the University of Colorado Medical Center, Denver, USA. It is a test for screening child development, it was developed and introduced in 1967. The scale reflects what percentage of a certain age group of children is able to perform a task. The test is administered by a pediatrician or other health professional. Tasks are grouped in to four categories and DENVER II using is to measure child development for 125 items of all four parts of child development;

1) Social contact; aspects of socialization inside and outside the home such as smiling. For this part, DENVER II tests child development 25 items.

2) Fine motor skill; eye and hand co-ordination, and manipulation of small objects such as grasping and drawing. For this part are 39 items.

3) Language; production of sounds, ability to recognize, understand, and use of language, e.g. ability to combine words. For this part are 29 items.

4) Gross motor skill; such as sitting, walking, jumping, and other movements. For this part are 32 items.

The purposes of the assessment of child developmental depend on the age of the children. For infants, testing serves to reassure parents or to identify the nature of problems early enough to treat them. For childhood, DENVER II can help delineate academic and social problems, hopefully in time to remedy them.

Anamai'49 is a test for screening child development that developed for Thai by Health Department and Mental Health Department. It is applied from DENVER II to be the simply tools to measure by the children families, public health workers in the communities, and the community health volunteers. The tool is made to assess

development of the children aged 0 – 72 mounts. Anamai'49 is used to measure child development only 48 items, the subjects assessed are contained also 4 parts.

1) Social contact; 9 items

2) Fine motor skill; 23 items

3) Language; 10 items

4) Gross motor skill; 6 items

In the principal of medical profession, Anamai'49 cannot detail to the final diagnose that the children are in delayed development or in normal development, the final diagnose must be on the test of DENVER II and submitted by the pediatrician, beside, measured by DENVER II needs many complicated steps likes all laboratory tests, needs the controlled process by the standard of the test strictly, needs controlled equipments used to test that must be by the standard, needs many times to test in the process. These reasons cause DENVER II is too complicated to measure child development. Then, screening Anamai'49 is applied to measure replace for the basis of screening. May not give the best just result, but Anamai'49 have given the benefit to majority of the children, it give the ways to observe the children something unusual, their families can test their development easily, if there are suspected to be unusual, they have to improve it early and to encourage their children to be normal development.

Development of Children Aged 3-5 Years

Children aged 3-5 years always have slower physical development than the 2 first years of age as same as the neural development, but the development of this age is so important like as the development of children aged 2 first years. Because the children aged 3-5 years are in the developing from the children who can not depend on themselves to be the children with self-depend more. They can move with more dexterous and can communicate with the other more and more. They like to get to be the self-confident. And they can do things with the good skill more. Child caregivers often think the children of this age are naughty, more movement, uncontrollable. But most behaviors of children aged 3-5 years that appear often increased by the requirement of children to learn every things in world wide. Those behaviors are the important parts of child development progress.

The characteristics of child development of this age compose;

1) Motor development. When the children improve their movement to be better, they can climb up and down without the assistance. When they are 5 years old they can move on over directions, and can use their hands to hold things very well.

Children aged 3-4 years can go up and down the stairs with alternating on both legs, jump with both two legs at the same time, walk by the tiptoes. The children aged 5 years can jump with alternating on both two legs and can walk on the directed line. The children aged 3-5 years can use the scissors to cut the paper and they can hold the pencil with the thumb, forefinger and ring finger. Children aged 4 years can kick the ball and control by the hands. Children aged 5 years can thread the needle.

2) Language development. The children aged 3 years can converse with a long and complicated sentence. Language development are 2 types e.g. the receptive language and the expressive language, both of language development are covered on the conversation and body language.

Children aged 3 years can grasp the easy preposition words e.g. "on", "under", they can dictate the colors at least one color, they can converse with a sentence. When they are 4 years, they can tell the experience story they found to the other with the long sentence.

3) Intelligence development. The children aged 3 years cannot understand deeply in the appearance what they have seen. But when they are 4-5 years, they can separate on the difference between the appearance and the reality.

4) Social and personality development. The children aged 3-5 years are naughty, but they always believe in the parents. If they show the aggressive behavior, groan weeping when they are dissatisfied and show the resistance behavior, we often can say they have got the relationship with their parents not well.

The children aged 3-5 years are always interested to play with the others , they can cooperate with the other to play and do something coordinate with the other. Sometime they get conflict. Children aged 3-5 years like to copy the parents' behaviors. They develop their social and personality behavior of the characteristics of the relationship with their families.

Maternal and Child Health Care

Health center is the health care service organization that located in the rural to serve the healthiness included the maternal and child health care for rural people. And the maternal and child health care is including on the antenatal care (pre delivery), post-delivery care, vaccination, nutrition encourage, development assessment. All post -delivery activities are served at the same time in Well Baby Clinic. Well Baby Clinic is opened to serve the children aged 0-5 years only a day per month.

The health center use an important document to develop the knowledge of parents, it is the Guideline of Maternal and Child Health. The users call it "Pink Notebook", Pink Notebook guides the parents many important materials e.g.

1) It is a handbook which contains the material of maternal and child health care during the duration of antenatal care through the children aged 5 years care. The substance are composed the knowledge on antenatal care (with the assessment of antenatal status), tables and charts to compare and show mother and child health status, the knowledge about the important diseases of mother and child. It guides the parents the important of breastfeeding, vaccination program, the knowledge of supplementary nutrition, the knowledge of child development and how to do each process well.

2) To be the personal history notebook of a child. The health official and child's mother have taken the history of health status of a child in a Pink Notebook all duration of aged from the first time of antenatal care at the heath center to the time the children aged 5 years. The handbook give the children their history of antenatal care, delivery process, new born birth weight, post-delivery care, nutrition status, vaccination care, and all stages of their development.

All mothers have received a Pink Notebook from the first coming to antenatal care at the health center and the official would advice them to use the notebook, keep it, and always take it with when their child comes to health center.

Theory of Child Rearing Patterns

Manee Chaiteeranuwatsiri, referred to Becker, (1964) classified the patterns of child rearing by used child rearing behaviors of the children's parents; there are 4 patterns;

1) Authoritarian-autocratic pattern. This pattern, the family conducts to their children by anyways or anything they want. Children have no independence to do anything. The family always wants their children to perform what the family wants more than to admit of their children.

2) Indulgent-permissive pattern. This pattern, the family looks after their children likes too please, everything their children want, what temper their children show, the parents neither punished nor offended.

3) Authoritative-reciprocal pattern. This pattern, the parents expect to their children, the parents bring their child the limitation thing to do, at the same time, they bring warmth and mind supporting. The parents often listen fully to the opinion of their children.

4) Indifferent-uninvolved pattern. This pattern, the family interacts to their children when there is necessity, they do not like performing to be the good parents.

Each child rearing pattern affects children in the difference ways of child development.

Related Literatures

Sally Grantham McGregor et al. studied about the developmental potential in the first 5 years of children in the developing countries found that, young children's cognitive or social emotional development were not available for most developing countries, and this gap contributed to the invisibility problems of poor development. In the developing countries, an estimated 99 million children of primary-school age were not enrolled, and of those enrolled, only 78% completed the primary school grade. The research reported that 37% of the children who lived in the rural areas with more absolute poverty. Poverty was associated with inadequate food, and poor sanitation and hygiene that lead to increased infections and stunting in children. Poverty was also associated with poor maternal education, increased maternal stress and depression.

The research reported that many children in the developing countries were exposed to many multiple risks for poor development including poverty and poor health and nutrition. There were few national data for children's development but the conservative estimate was more than 200 million children aged 0-5 years in the developing countries were not developing to the full potential. The largest number

lived in South Asia. The children would do poorly subsequently in school and were likely to transfer the poverty to the next generation.

Susan P Walker et al. studied about the child development and the risk actors in the adverse outcomes in the developing countries. They presented those risk factors which the existing evidence were strong enough to recommend on the implementation of strategies to reduce or prevent the effect of these risks on young children's development. The researchers based their conclusions on the consistency of the evidence, the numbers of children affected, and the size of the effect on development. The first four risk factors affected at least 20–25% of children in the developing countries, and the evidences of their effects on the development included the randomized control trials. These four factors were inadequate cognitive stimulation, stunting, iron deficiency, and iodine deficiency. Represent crucial risks which were preventing millions of children from reaching their developmental potential, and for the interventions which were urgently needed. The remaining risk factors identified also affect substantial numbers of children and consisted epidemiological evidence that showed their effect on development. The interventions to address these risks were also needed, and their priority would depend on the country contexts.

The researchers showed that the prevalence rates for maternal depressive symptoms across the developed and developing countries ranged from 3% to 60%, the rates significant to be higher in the developing countries. The maternal depression could affect the maternal child rearing behaviors. Large numbers of children from the developing countries were exposed to wars or to the community and political sectarian violence. There were few studies from the developing countries on the effects on infants and preschool children of exposures to armed conflict or community violence. The research concluded the available evidence showed that the specific risks encountered by young children in the developing countries compromised their development. The numbers of children affected were enormous; in some countries 40–50% of children under 5 years were stunted.

PJ Quinn et al, studied about the effect of breastfeeding on child development and found that, a strong positive relationship was demonstrated between breastfeeding and the PPVT-R scores with increasing scores with the increased duration of breastfeeding. After the adjusting for a wide range of biological and social factors, the adjusted mean for those breastfed for 6 months or more was 8.2 points higher for

females and 5.8 points for males when compared to those never breastfed. And the research concluded that these findings suggest a significant benefit to child development was conferred by breastfeeding and was related independently to longer periods of breastfeeding.

The interesting study of pregnancy planning status relating child development, Kathryn Kost et al, studied about the effects of pregnancy planning status on birth outcomes and infant care, found that, the proportion of infants born with a health disadvantage was significantly lower when the pregnancy was intended than if it was mistimed or not wanted; the proportions who received well baby care by age three months and who were ever breastfed were coming to be highest if the pregnancy was intended. However, a mistimed pregnancy was not significant effect on any of these outcomes. An unwanted pregnancy increased the likelihood that the infant's health would be compromised, but the association was not longer significant when the mother's prenatal behaviors were also taken into account. Unwanted pregnancy had no independent effect on the likelihood of well-baby care, but it reduced the odds of breastfeeding. The research concluded that knowing the planning status of a pregnancy could help identify the women who may need support to engage in prenatal behaviors that were associated with the healthy outcomes and appropriate infant care.

Ines Velasco et al. studied about the effect of iodine prophylaxis during pregnancy on the neurocognitive development of children found that the children whose mothers had received iodine supplement had more favorable psychometric assessment than those of the other group of mothers. They had higher scores on the psychomotor development and the behavior rating scale. The research concluded that the dietary iodine supplements not only had no harmful effect on the neuro-development of the children, they might even be beneficial.

In Thailand, Duanghatai Janchua et al., (2004), studied about the factors affecting development of children aged 0-5 years in the North of Thailand found that, 65.9% of all population children was in normal development and the majority of normal development was the gross motors. Considered by the individual child factors they found that, the body weight per age of the children was affecting the language development, social development, and total development, while, body height per age of the children was affecting the total development, expected to gross motor development. And body weight per body height influenced the social development,

and the total development, besides, the research reported that, there was the difference of child development by the residence location of the children. Prepared by the residence locations, the children who lived in the rural area were in delayed development more than the children in the urban areas. The children who lived in the rural were in normal development for 64.44% while, the children whose residence located in the urban areas were in normal development for 72.83%. The difference of the mothers' and fathers' education levels affected on child development no different, Child birth weight affected on child development different level. The children with body birth weight lower than 2,500 g. were in normal development for 58.50%, while the children with body birth weight more than 4,000 g. were in normal development for 91.67%. The difference between types of delivery and child development was the children who pre-term-delivery were in normal development for 78.38% and the children who born with full term delivery were in normal development for 64.38%. The children whose mothers

had got only one time of quality of antenatal care were delayed development for 46.33%. The tall children 89.47% were in normal development and the short children 45.53% were in delayed development.

Suthum Nuntamongkolchai et al. (2004), studied about the crises in the families that related with preschool child and primary school child development in Bangkok, Burirum, Phrae, and Saraburi. The crises that the researchers interested to study was; the family structure, family income, migration, drug used, and children exposed with violence, they found that, the characteristics of early children families were; the education level of fathers was lower than primary school and primary school, there was 49.4% and the education level of mothers was lower than primary school and primary school, there was 51.3%. The number of families with low income was 85.30%. The number of single families was 72.7% and the number of extended families was 27.3%. The children with worst experience on child rearing were 60.5%. The families with crisis were 37.8%. The research found that, there was 37.8% of the families of all participants, pre-school and school children families, had family crises. Family crisis was statistically significant association with child rearing and development of pre-school children. The children who lived in the families with crisis were at the higher

proportion of poor supportive rearing and more suspected delayed development than children who lived in families without crisis. While, the school children did not show statistically significant association between family crisis and child rearing and development.

Suthum Nuntamongkolchai et al., (2003), studied about the family factors influenced the development of children aged 3-6 years or the children of preschool aged in four provinces in Thailand (Burirum, Phrae, Saraburi and Bangkok), found that, there was 30% of the children had suspected delayed development. Gender and birth order number of child had no relationship with the development of the children aged 3-5 years. The education level of their parents, the parents' incomes, the family structures, the crises in their family, the relationships between the members in the family, and the experience treating for early children in the family, found that, The children whose mothers' education were higher than primary level had 2.2 times of chance of normal development compared with those whose mothers were primary level of education and lower. The children who received the good child care and child rearing had 2.3 times of chance of normal development compared with who received the poor child rearing.

Thisopin Thongthai et al (2006), used the Parents School Course Project to encourage the development of children aged 0-5 years at the hospitals in the North of Thailand, and studied on the knowledge effective by the course, the research found that, the Parents School Course Project brought the knowledge to the parents about the early children health care covered only the population of pregnancy period and post delivery period. The parents could not apply any knowledge from the Parents School Course Project to encourage the child development in the next steps of development.

Conclusion of related literatures

Collected the factors related to affect child development by the related literatures, guided that the researcher classified these factors to be 3 groups;

Group 1: The socio demographic; this group is classified by the individual data of the children and characteristics of their families such as family income, resident location, parent's education level.

Group 2: The birth, nutrition and medical history; this group is classified by the history of the children from the process of the prenatal care, delivery process, body birth weight, child breastfed and the history of illness and condition of nutrition such as iodine deficiency, iron deficiency.

Group 3: The developmental environment; classified by the child rearing patterns and child care that affected by the knowledge, social, popularity, and belief of families. They are family crises, books for children, hygiene, opportunities encouraging child development.

CHAPTER III
METHODOLOGY

Research Design

This was a cross-sectional research study. The basic analytical method is first organize the data according to exposure (independent variables), then measure and compare the health outcome (dependent variable) at different levels of exposure.

The independent variables are child individual factors, family factors, and social factors measured and compared with the health outcome or the dependent variable that is the results of the child development assessment.

Study Area

Research area is the service area of Muangphrai Primary Care Unit. Muangphrai Primary Care Unit serves health care to the people in the area of 2 subdistricts, Municipal of Muangphrai Subdistrict and Local Administration of Bungklua Subdistrict and there are 23 villages, 3 health centers affiliated under the Muangphrai Primary Care Unit, they are Muangphrai Health Center, Bungklue Health Center and Numjunyai Health Center.

There are total 2,411 households in the research area, classified by the health center, there are;

- Muangprai Heath Center 8 villages 770 Households
- Huakou Heath Center 7 villages 851 Households
- Namjunyai Heath Center 8 villages 790 Households.

Total population in the research area is 13,250.

Study Population

The study population are children aged 3-5 years in the service area of Muangphrai Primary Care Unit. The children were born during 1st October 2002 to 30th September 2005, distributed in each heath center as follows;

- Muangprai Heath Center has 770 children
- Huakou Heath Center has 851 children
- Namjunyai Heath Center has 106 children.

Total 412 children

The researcher got the list of children from the data base of each health center, all of the children in the list were selected to be in the step of the research sampling.

Inclusion/ Exclusion Criteria

1) Inclusion criteria

- *Children aged 3-5 years* means the children aged less than 6 years and the age not less than 3 years on the assessment day.

- They are the children who live in the Municipal of Muangphrai Subdistrict or in the Local Administration of Buangklue Subdistrict for the long time that does not less than 6 months before the data collecting.

2) Exclusion Criteria

- The children aged 3-5 years in this research would not be the disabled physical children. *Disabled physical children* means the children who were diagnosed by the physician doctor to be the disabled, or the children who certificated to be the disabled by the certificated book that certified by the government organization.

- The children who live in the Municipal of Muangphrai Subdistrict or in the Local Administration of Buangklue Subdistrict at least 6 months before the date of data collecting are excluded.

Sample and Sample Size

The Bureau of Policy and Strategy reported that the proportion of children aged 0-5 years old who are normal development in Thailand is 65%. This the prevalence rate used in the formula is P = 0.65.

The formula used for calculate the sample size is referred to Kish & Leslie, Survey Sampling, John Wiley & Sons, New York, (1965) (Epiinfo, Statcalc procedure)..

Sample Size	=	n/(1+(n/population)) [population=412]
n	=	Z*Z(P(1-P))/(D*D)
Z	=	1.96 = 2-sided Z for 95% confidence level
P	=	0.65
D	=	0.05

The sample size is calculated by program Epi Info (version 6.0), It was 189 participants, the data added 10 per-cent for missing data. The research sample size in this research is 210 participants.

Sampling Technique

The researcher selected the participants by using the systematic sampling.

1) Took the list of children to arrange respectively by the 23 villages in the study area. Start with the village number 1 to number 14 of Muangphrai Subdistrict followed with the villages number 1 to number 9 of Bungklue Subdistrict.

2) The lists of children in every village were classified by their birth date. The first child of the second village of Muangphrai Subdistrict was continued from the last child of the first village, continued by the third village, by this method, the first child of the ninth village of Bungklue Subdistrict was continued from the eighth village.

3) Finding the participants, calculated by the formula, the number of population per the number of sample size. Then, finding the start number, and when the researcher found the start number so that can select the participants. The research selected 1 participant from every 2 members of the population.

Measurement Tools

Measurement tools have 2 parts;

Part 1 The questionnaire

The questionnaire is designed to be used for survey and interview the child rearing supporters, based on *The Assessment and Encouragement of Early Child Development Handbook.* and *the Maternal and Child Care Handbook* and the related literatures. The data collectors are public health officers and general nurses who trained by the researcher, they are the officers and the nurses who works at the Selaphum Hospital. The questionnaire is developed by the researcher based on the suggestion of the adviser, Dr.Robert S. Chapman and the experts;

- Mr. Uppathin Runguthaisiri, Expert Physician and the Director of Selaphum Hospital,

- Mr.Prapas Anunta, Specialty Technician of Public Health at the Roi-Et Province Public Health Office, and

- Mrs.Kobkarn Kamolmattayakul, Specialty in General Nurse, Head of the Department of Nurse, Selaphum Hospital.

The questionnaire asks for the variables that affecting on the development of children aged 3-5 years. there are 2 parts with 36 questions

1. General data: ask for the socio demographic data 18 questions for Sex, Age, Birth order number, Residence area, Sized of village, Parents' age, Parents' education level, Main child care giver in the day time, Size of family, Type of family, Family income, Access to health care, Access to child development service

2. Factors affecting on child development: ask for the birth nutrition and medical history data and for the developmental environment data, 18 questions;

1) Birth, nutrition and medical history such as Quality of the prenatal care, Delivery process, Term of pregnancy, Body birth weight, Child breastfed, Supplementary nourishment, Iodized-salt consuming, Diseases obstructing on development

2) Developmental environment: Child's family and child rearing patterns such as Appropriate books for children received, Appropriate toys for children received, Family activities encouraging child development received, Received family opportunities encouraging child development, Child rearing patterns, sanitary drinking water, Health behavior and hygiene learning, Crises in family, Child left alone, Family knowledge on child development.

The questionnaire users were the mothers, except, in case of the mother does not live with the child or they would not in the situation to use the questionnaire, then the father or the child care giver are replaced to be the user. In case of the father or the child care giver are the questionnaire users, they might use the evidences to show the antenatal care history and delivery care history such as, the maternal and child handbook (pink notebook,) a birth certification, engaged to answer the questionnaire.

Part 2 The Assessment of Child Development Anmai'49

The researcher use only the children aged 3-5 years assessment. The general nurses who were trained on Anamai'49 were testers. The outcomes of the measurement are specified to be 1 of 2 types that either in delayed development or normal development. The child development test in this research is based on the multi-development. The researcher cut only the parts of the assessment for the children aged 3, 4 and 5 years. To assess child development, the data collector would be familiarity to conduct the child to do activities and show their abilities as the assessment has specified.

1. Development of children aged 3 years (37-48 months)

1) The children can answer at least 1 of the "colors": Ask the child what is the color of the crayons, or the sharpeners. If the child can answer at least 1 color to be right, can get the pass of this test.

2) The children can write a circle by a draft (Copy a circle): Place a draft for the children to draw on. Never say to the child that it is a circle, if the children can do, they pass this exam.

3) The children can talk about a story and tell the other to understand almost of the story: To persuade the child to see the photos or the pictures in the tale books, such as the tale the Rabbit and the Turtle, The Lion and the Rat, The Sheep Whisperer, then, to talk about that story. If the children can tell almost of the story, they pass the test.

The children must pass all 3 tests to pass to be normal development, if they cannot pass at least one, they were classified as having delayed development.

2. Development of children aged 4 years (49-60 months)

1) The children can understand and explain something by simple reason: Assessed by asking the children that if they feel hungry, what they would do, when they feel sleepy, what they would do. If they can answer that they must eat, drink, or go to sleep, go to rest, they pass of this test.

2) The children can recognize and count the number of 1-5. Tell the child to pick up the items 1-5 pieces: If they can pick up items and can tell the numbers of items, They pass this test.

3) The child can answer at least 4 colors of all colors: Ask the children what is the color of the things. If they can answer at least 4 colors right, they pass the test.

4) The child can draw a simple structure of human: Place paper and pencils. Tell the children to draw a simple structure of human. If they can do this, they pass the test.

The children must pass all 4 tests to pass to be normal development, if they cannot pass at least one, they were classified as having delayed development.

3. Development of children aged 5 years (49-60 months)

1) The children can recognize and tell what is left or right, above and below, forward and backward: Tell the children to put things at right or left, under or on, in front of or behind. If they can do, they pass this test.

2) The children can recognize and count the number of 1-10: Tell the children to pick 10 pieces of items, if they can pick and can tell how many of them, they pass this test.

3) The children can draw the structure of triangle: Place a paper and pencil to the children, Tell the children to draw a structure of triangle. If they can do, they pass the test.

The children must pass all 3 tests to pass to be normal development, if they cannot pass at least one, they were classified as having delayed development.

Data Analysis

1. Descriptive statistics

The collected data were summarized by the summary statistics, mainly frequency, percentage, crosstabulation and proportions.

2. Inferential statistics

The main purposes of data analysis was to ascertain the associations between the independent variables and the dependent variable. The dependent variable, development status, was analyzed against each independent variable separately. Independent variables were all categorical in nature. Thus, the researcher used the chi-square test to analyze data in this step.

After analyzing of Crosstabs step the researcher collects the variables which P-value≤ 0.20 to be analyzed as independent variables in multiple logistic regression models. These were constructed in 3 steps, for screening thoroughly to find the associations of all variables to affect child development. This P-value was chosen to provide a fair chance to allow variables that were not statistically significant in bivariate analysis to become significant in multiple logistic regression analysis.

1) Preliminary multiple logistic regression models were used to analyze for the first step, 3 groups of variables are analyzed by this step, group by group. That is, separate models were constructed for socio demographic variables,

personal children's variables, and developmental environment variables. By the results of this models, the variables which P-value ≤ 0.20 would be selected to analyze in the next step.

2) Semi-final multiple logistic regression model is used to analyze. In this step, the variables which P-value ≤0.20 from the preliminary multiple logistic regression models were selected and entered into a single model. The analyzed variables from this step for which P-value ≤0.020 are selected to analyze in the next step.

3) Final multiple logistic regression model is the last step, the variables which P-value ≤ 0.20 from the semi-final model are selected to analyze in this final step. Finally, the variables which P-value ≤ 0.05 are suspected to be the factors affecting child development.

The researcher selects the variables which P-value ≤0.20 to analyze in the preliminary, semi-final, and final multiple logistic model because there are befitting to the number of variables that so much. And analyzed by Crosstabs and 3 steps of Multiple Logistic Regression Analysis, the conclusions might be error at the least.

The statistics analysis is performed by using program SPSS.

Ethical Consideration

This research is studied to achieve the objectives of education about what factors affecting to the development of children, to find what factors obstructing to child development, for seek the ways to involve those trend correctly. This research is a public health research, the researcher would present the research proposal to the Ethical Review Committee for Research Subjects, Health Science Group, Chulalongkorn University and would strictly follow the Committee's guidance.

Limitation

1) Besides of the child individual factors and the family factors, there are other factors can affect to child development, those factors are, for example, genetic, environment and community culture. Then this research might have the weakness likes the other Cross Sectional Research, thus we often cannot be sure whether exposure really came before child development.

2) This research, the child development assessment can not assess the disabled physical children, and the guilty children of sight and sense.

3) To assess the development of a child, the general nurses who assess must take the long times to be friendly with the children, using things, such as, the crayons, the small-sized pencil sharpeners which beautiful and colorful, the pretty colored paper, and pretty pencils, would given to the children then the familiarity would helped to growing up easily. In case the child who still do not show the behaviors respond to the assessment, the researcher plans to solve any problems as follows;

- To explain the strategy to the mothers or fathers or child care givers to understand how to assessment the child development then they would help encouraging the children to show the behaviors respond the assessment.

- In case of any children have no respond to the assessment after the nurses have try more. The researcher plans to assess the child development on another day later.

- If there is any children no respond on the assessment and in the later, the child care givers would not want their children to assess, when they desire to go out off the project they always can withdraw from the project.

4) In case of the assessment meets that any children are in delayed development, the researcher or the nurses must explain to the mother or father or child care givers to understand about the standard of the child development, what are behaviors that their children could do when they get on aged 3 years, 4 years or 5 years, so we can call that normal development. To encourage the child development to solve the problems in case of the children with in delayed development, first, the researcher or the nurses would suggest the mother or child caregivers what are the important things to take care and to encourage their children. The suggestions are that how to pushing up child development such as, teach their children to known what are colors of the things, providing the children books for the children to learn how to draw or write, providing the toys for their children to play to develop their skills, how to talk to their children and teach about social skills, The suggestions about child development are appeared in the Maternal and Child Health Handbook (Pink Notebook) that most of mothers or child caregivers have got as the children health profiles.

In case of the assessments are found that there are children with delayed development obviously, the researcher must explain the child caregivers and suggest to take the children to the pediatrician for diagnosed and plan to care appropriately.

Expected Benefit & Application

The research report would develop to conduct the new knowledge to solve the problems on child health care and the barriers of child development. The researcher would present the research report to the institutes who play the role of child development, such as, the local administration organization , school , hospital , and health center to adjust the policy and strategy for, at the finally, children would be good health in the normal development.

CHAPTER IV
RESULTS

Descriptive of Frequency and Percentage

Collecting data by using the questionnaire and assessing the development of the children aged 3-5 years on the procedures of the research. The researcher has collected the data and divides it to be the groups of data;

Part 1: Child development

Part 2: Socio demographic

Part 3: Birth, nutrition and medical history

Part 4: Developmental Environment

The results are presented as follows.

Part 1: Results of child development assessment

The results of child development assessment by using the Anamai'49 to assess, the assessment assessed and valued in the 2 levels of multi-development , the children would get only one way of the assessment results, either normal development or delayed development. The research reports that the children in Muangphrai Primary Care Unit, 210 children, are in normal development 122 children, the frequency is 58.1%. And 88 children are in delayed development, the frequency is 41.9%.

Table 1: Results of child development (frequency and percentage)

Characteristics	Frequency (n=210)	Percentage
Result of child development measurement		
- Normal development	122	58.1
- Delayed development	88	41.9
Total	210	100.0

Part 2: Socio demographic

The children aged 3-5 years in this research are based on the list of the system sampling. The children aged 3-5 years *means* the children who are 3 years old or more than 3 years but less than 6 years. To explain the results of this survey in the children 210 participants the statistics reports that the number of male children is 59%

and of female is 41 percent. The children aged 3 years is 37.6%, aged 4 years is 34.8% and aged 5 years is 27.6%. The number of first child of the parents is 52.4%, and the second child and the later is 47.6%.

Table 2: Children's characteristics (frequency and percentage)

Characteristic	Frequency (n=210)	Percentage
1. Sex		
- Male	124	59.0
- Female	86	41.0
2. Age		
- 3 years	79	37.6
- 4 years	73	34.8
- 5 years	58	27.6
2. Birth order		
- The first	110	52.4
- The second or later	100	47.6

Muangphrai Primary Care Unit services public health cares for the people who live in the area of two subdistricts, Muangprai Subdistrict and Bungklue Subdistrict, The research is interested on the factors of the difference of residence areas that affecting differently on child development. The researcher has divided the size of villages in the research areas to be groups of size, the large-sized villages means there are more than 100 households and the small-sized villages means there are 100 households or less than, the results are the number of the children who live in the Muncipal of Muangphrai Subdistrict is 54.3% (114 children) and who live in the Local Administration of Bungklua Sub-district is 45.7% (96 children).

Table 3: Child's residence area (frequency and percentage)

Characteristic	Frequency (n=210)	Percentage
1. Residence area		
- Municipal of Muangphrai Sub-district	114	54.3
- Local Administration of Bungklua Sub-district	96	45.7
2. Size of the village		
- Small size (100 households or less)	96	45.7
- Large size (101 households or more)	114	54.3

Composes with the personal data of the fathers, mothers, and child's care givers the research explains the data by dividing on about their age and their education levels. By the characteristics of the families, that the data is specified by the size of the families, types of families and incomes of families.

The frequencies of aged of the fathers are the father aged less than 35 years for 68.1%, and 35 years or more than for 31.9%. The frequencies of aged of the mothers are the mother aged 25-35 years for 62.9%, the aged less than 25 years for 22.4%, and the aged more than 35 years for 14.8%. Discussed by the education levels, Most of the education levels of the fathers is primary school or less than, the frequency is 53.8%, most of the education levels of the mother is primary school or less than, the frequency is 55.7%, also most of the education levels of the child care givers who care mainly in the day time for children is primary school or less than, the frequency is 80.0%, these statistics show that the majority of the children are cared by the child care givers who succeed on the education level of primary school or lower.

There is some interesting data, it is the number of the main child care giver in the day time, the data reports that the children are cared by their parents only 18.6%, cared by only their mother for 21.9%, the remainder, the majority, 59.5% of the children are cared by their grand parents or the relatives.

Table 4: Characteristics of the child's parents (frequency and percentage)

Characteristics	Frequency (n=210)	Percentage
1. Age of the father		
- Less than 35 years	143	68.1
- 35 years or more	67	31.9
2. Education level of the father		
- Primary school or lower	113	53.8
- Lower secondary school	42	20.0
- Upper secondary school and higher	55	26.2
3. Age of the mother		
- Less than 25 years	47	22.4
- 25-35 years	132	62.9
- More than 35 year	31	14.8
4. Education level of the mother		
- Primary school or lower	117	55.7
- Lower secondary school	51	24.3
- Upper secondary school and higher	42	20.0
5. Main child care giver		
- Mother	46	21.9
- Both father and mother	39	18.6
- Only father or grandparents or other relatives	125	59.5
6. Education level of the child care giver		
- Primary school or lower	168	80.0
- Higher than primary school	42	20.0
7. The status of the parents, the child live with		
- Father or mother or all parents	108	51.4
- Never live with the parents	102	48.6

The majority of the children’s families in this research are the medium-sized families that there are 5-6 members in one family, the frequency is 45.7%, the majority of characteristics of the children's families is the extended family, the frequency

is 85.2%, and most of the families are in the situations of the family economics, the families which in the income situation of balanced, no dept and no deposit are 41.1%, the frequency of the families which imbalanced and got some debt is 37.1% and the frequency of the families which balanced and some deposit incomes is 21.4%.

Table 5: Family characteristics (frequency and percentage)

Characteristics	Frequency (n=210)	Percentage
1. Size of the family		
- Small (2-4 members in family)	73	34.8
- Middle (5-6 members)	96	45.7
- Large (7 members or more)	41	19.5
2. Family type		
- Nuclear family	31	14.8
- Extended family	179	85.2
3. Family income		
- Imbalanced and some debt	78	37.2
- Balanced, no dept and no deposit	87	41.4
- Balanced and some deposit	45	21.4

The majority of the research participants received the health care services from the health centers in the research area, there are three health centers in the service area of Muangphrai Primary Care Unit, Maungphrai Health Center, Namjunyai Health Center and Huaku Health Center, the frequency of this majority is 72.9%. The majority of the research participants access to receive the encouragement of child development in the community child development centers near their home, Muangphrai Child Development Center, Thalom Child Development Center and Huaku Child Development Center, The frequency of this group is 57.1 %.

Table 6: Access to health and development services (frequency and percentage)

Characteristics	Frequency (n=210)	Percentage
1. Entered to the health care services of		
- The health center	153	72.9
- Other health care services	57	27.1
2. Access in Community Child Care Center		
- Not Entered	33	15.7
- Community child development center	120	57.1
- Kindergarten	57	27.2

Part 2: Birth, Nutrition and medical history

The management of health promotion services within the work frame of the health encouragement of the health centers, mother and child health and child rearing patterns, are the factors that the researcher is interested to study how they influence on child development. Collecting data by using the questionnaire that contained with the child care processes, antenatal care that affecting on child birth weight, on child breastfeeding, and on child development, promoting on child nutrition, child rearing patterns, sanitary water and hygiene learning, crises in the families, all of these factors, the researcher is interested to study how they affecting on child development, to prove that there is right or wrong that these factors are affecting on child development. And as the follows are research reports that received from the collecting data and data analysis.

The research data is divided into the groups of data, then the study reports that;

1) In the steps of antenatal care and delivery process, the research reports that, the frequency of mothers who received the good quality of pre antenatal care by the standard of the Ministry of Public Health , four times of the quality of antenatal care clinic by the health officials are 85.7%, who received the normal delivery by the quality of the delivery process are 81.0%, the mothers who kept full term of pregnancy are 91.9%, and the participates whom received the body birth weight more than 2,500 gram, by the standard of quality of the maternal and child health care of the Ministry of Public Health, are 91.9%.

Table 7: Antenatal care and delivery process (frequency and percentage)

Characteristics	Frequency (n=210)	Percentage
1. Quality of the antenatal		
- 4 times on ANC care quality	180	85.7
- Less than 4 times on ANC care quality	30	14.3
2. Delivery process		
- Normal delivery	170	81.0
- Others	40	19.0
3. Gestational age		
- Full term	200	91.9
- Premature	10	8.1
4. Birth weight		
- 2,500 g. or more	193	91.9
- Lower than 2,500 g.	17	8.1

2) In the steps of the maternal and child heath care, contained by the factors of child breastfed, appropriate supplementary nourishment, iodized salt consuming, and the children with unexposed to the diseases obstructing child development, the research reports that the children aged 3-5 years have got the child breastfed at least the first 6 months of aged for 49.5%, the children whom received enough appropriate supplementary nourishment are 36.2%, the children who received iodine substance from consuming the iodized salt are 55.7%, and 91.9% of the children are unexposed to the diseases which interrupt on child development process.

By the suitability, and the sufficient for the process of the growth of children, according to the standard of the maternal and child health program, they should have received the child breastfed at least the first six month of age, the supplementary nourishment that appropriated to their age (they should not received the nourishment together with their families and they should received the appropriate supplementary nourishment always 3 times a day), also the families should consume the iodized-salt

appropriately, the iodized-salt is assured by checking of the iodine quantities from the public health workers, and the diseases that obstructing on child development are anemia, poor nutrition, substance deficiency, diagnosed by the physicians.

Table 8: Maternal and child heath care (frequency and percentage)

Characteristics	Frequency (n=210)	Percentage
1. Received brestfeeding		
- By the first 6 months of age or longer than	84	40.0
- Shorter than the first 6 months of age	126	60.5
2. Received the appropriate food complementary		
- 3 times a day	76	36.2
- Less than 3 times a day	134	63.8
3.Received Iodized-salt		
- Appropriated	117	55.7
- Non appropriated	93	43.3
4.Exposed to diseases interfering development		
- Unexposed	193	91.9
- Exposed	17	8.1

Part 4: Developmental environment

By the child rearing patterns and child developing encouragement process, the formats of child care and child rearing, and the child development encouragement which the children should have encouraged, for example, the arrangement about serving appropriate books for children (appropriated by age of children and by among of books at least 3 books), about serving appropriate toys for child development (appropriated by age of children and by among of toys at least of three types), giving appropriate opportunities to encourage child development (such as to play with the other children, to go up and down the stairs, to climb, to choose the clothes themselves), sharing appropriate activities to encourage child development (talk the tale, dance, sing a song), and coordinating and planning to do the family's activities. The research reports that , the number of the children aged 3-5 years in Muangphrai Primary Care Unit who received appropriate child books encouraging on child

development is 49.5%, while, the number of the children who received appropriate child toys to encourage child development is 62.4%, the children who received giving appropriate family's activities to encourage child development is 54.8%, the frequency of the children who received appropriate opportunities from their families to encourage child development is 60.5%, and the frequency of the children who received rearing on the appropriate child rearing pattern by their families is 22.9, most of the families, 77.1%, often rear their children by using inappropriate child rearing patterns.

Table 9: Child rearing patterns and developing encouragement (frequency and percentage)

Characteristics	Frequency (n=210)	Percentage
1. Received appropriate books for children		
- Enough	104	49.5
- Not enough	106	50.5
2. Received appropriate toys for children		
- Enough	131	62.4
- Not enough	79	37.6
3. Received appropriate activities to encourage		
- Enough	115	54.8
- Not enough	95	45.2
4. Received appropriate opportunities to encourage		
- Enough	127	60.5
- Not enough	83	39.5
5. Child rearing patterns		
- Positive	48	22.9
- Negative	162	77.1

By the sanitary drinking water and personal hygiene learning, the research reports that the children who have received the appropriate sanitary water to drink enough, the water which be the bottled drinking water or the rain water which contained in the cleaned containers, the frequency is 85.2%. And the others who

consume the water from the suppliers with un-appropriate sanitary water such as the community water supply systems and the ground water that never in the improvement procedures, the frequency is 14.8%. The children aged 3-5 years in Muangphrai Primary Care Unit who have been good hygiene behaviors and have received the health education from their families are 67.6%. The children with poor hygiene and poor heath education are 32.4%, poor hygiene behaviors like to make the children to be the illness of the diarrhea, pneumonia, and more infectious disease that obstructing on child growth and child development.

Table 10: Sanitary drinking water and personal hygiene (frequency and percentage)

Characteristic	Frequency (n=210)	Percentage
1. Received sanitary drinking water		
- Good sanitary drinking water	179	85.2
- Poor sanitary drinking water	31	14.8
2. Health behavior and hygiene learning		
- good	142	67.6
- poor	68	32.4

By the crises in the families, this research is according to the crises in the families that affects the families by the conditions of, there are members in the families who have diagnosed to be the chronic patient, there are members who live as the disabled or live as the self-helpless, there are members who are considered to be drunken, There are members with unemployed or there are members with brawls, and in case of the children who live with often left alone, the children left alone are the children who often left alone to live alone or live with the other members aged under 10 years. The research reports that, the frequency of the children who live in the families with crises, with only one condition or more than, is 16.2%. And the frequency of the children who were often left alone was 11.4%.

Table 11: Crises in family (frequency and percentage)

Characteristic	Frequency (n=210)	Percentage
1. Family Crises		
- Yes	176	83.8
- No	34	16.2
2. child left alone		
- Yes	186	88.6
- No	24	11.4

By the knowledge and child development learning, This factor is specified by conditions of, in the general, the child care givers should often receive the knowledge of child development to guide them to encourage their children by the appropriate activities on the child development procedure in each spans of ages, Ways to receive the knowledge are; reading the guide books or documentary guides, or watching the multi-medias. This research reports that, in Muangphrai Primary Care Unit the child care givers have received enough knowledge of child development from the Pink Notebook Mother and Child Handbook or the other books or medias by 66.2%, and the number of child caregivers who does not receive any document enough, the families which never learn on child development, is 33.8%.

Table 12: Knowledge and learning on child development (frequency and percentage)

Characteristic	Frequency (n=210)	Percentage
1. Caregiver knowledge on child development		
- good	139	66.2
- poor	71	33.8

Bivariate Analysis (Crosstabs Analysis)

Then, the researcher took the collected data, that specified to be the groups of data that there are the children's individual data, the children's residence areas, their families characteristics, the access to health care services and child development services, the processes of child development encouragement, Compared to describe

together with the results of the assessment of child development by using the Statistics Crosstabs and using the HPSS program to analyze. The results are as the follows;

Group 1: Socio demographic to child development

1) Discussed by using the individual data of children aged 3-5 years compared with the data of child development assessment. The data is described by Table 13.

Table 13: Child's characteristics (crosstabulation)

Characteristics	Results of development				X^2	P Value
	Normal development (n=122)		Delayed Development (n=88)			
	count	%	count	%		
1. Sex					2.919	0.086
- Male	66	53.2	58	46.8		
- Female	56	65.1	30	34.9		
2. Age					6.168	0.046
- 3 years	50	63.3	29	36.7		
- 4 years	34	46.6	39	53.4		
- 5 years	38	65.5	20	34.5		
2. Birth order					15.580	<0.001
- The first	78	70.9	32	29.1		
- The second or later	44	44.0	56	56.0		

The male children are in delayed development higher than the female children (46.8% and 34.9 percent), but the statistics shows that discussed by sex of the children the P-value is 0.086, this means there is weak relationship between this characteristic and child development. The children aged 3 years is the most of all ages in normal development (41%) but the children aged 4 years is the most of all ages in delayed development (53.4%), the p-value is equal to .046 and x^2 is equal to 6.168, the values show that the age of children relates with child development. And the first child of the parents was in delayed development less than the second or the later child, P-value < 0.001) shows the strong relationship between child order number and child development.

2) Discussed by using the characteristics of child's residence areas and size of villages compared with the assessment of child development. The collected data is described by Table 14.

Table 14: Child's residence areas (crosstabulation)

Characteristics	Results of development				X^2	P value
	Normal development (n=122)		Delayed Development (n=88)			
	count	%	count	%		
1. Residence area					14.948	<0.001
- Municipal of Muangphrai	80	70.2	34	29.8		
- Local Administration of Bungklua	42	43.8	54	56.3		
2. Size of the villages					.247	0.619
- Small	54	56.3	42	43.8		
- Large	68	59.6	46	40.4		

From the table above, the frequency of the children who live in the Municipal of Muangphrai Sub-district is 29.8% of all in delayed development, lower than the frequency of 56.3% of Bungklue Sub-district, the P-value is equal to < 0.001 that means there is high difference between the development of the children in the urban area of Muangphrai Sub-district and the rural area of Bungklue Sub-district. But there is few difference of child development considered by the sizes of villages.

3) Discussed by using the characteristics of child families, qualifications of the children's parents, the child care givers compared with the results of child development assessment. The collected data is described by Table 15.

Table 15: Characteristics of the child's parents (crosstabulation)

Characteristics	Results of development				X^2	P value
	Normal development (n=122)		Delayed Development (n=88)			
	count	%	count	%		
1. Age of the fathers					3.159	0.075
- Less than 35 years	89	62.2	54	37.8		
- 35 years or more	33	49.3	34	50.7		
2. Education levels of the fathers					.349	0.840
- Primary school or lower	64	56.6	49	43.4		
- Lower secondary school	26	61.9	16	38.1		
- Upper secondary school and higher	32	56.2	23	41.8		
3. Age of the mothers					.203	0.904
- Less than 25 years	26	55.3	21	44.7		
- 25-34 years	78	59.1	54	40.9		
- 35 years or more than	18	58.1	13	41.9		
4. Education levels of the mothers					1.857	0.395
- Primary school or less	67	57.3	50	42.7		
- Lower secondary school	27	52.9	24	47.1		
- Upper secondary school and higher	28	66.7	14	33.3		
5. Main child's care givers					9.867	0.007
- Mother	36	78.3	10	21.7		
- Both parents	20	51.3	19	48.7		
- Only father or grandparents	66	52.8	59	47.2		
6. Education levels of care givers					0.313	0.576
-Primary school or lower	96	57.1	72	42.9		
- Higher than primary school	26	61.9	16	38.1		
7.The children live with					5.339	0.021
- Only father or only mother or Both with father and mother	71	65.7	37	34.3		
- Neither father or mother	51	50.0	51	50.0		

Specified by the age of the parents, the education levels of the parents, and the education levels of the child care givers, the P-values are more than 0.05, mean these characteristics relate with the child development weakly. But specified by the mainly child care givers in the day time, the children whom cared by their mothers are in delayed development for 21.7% lower than the 47.2% of delayed development of the children whom cared by their fathers, grandparents or relatives, the P-value of this characteristic is equal to 0.007 that means this characteristic relates to the results of child development. And the children who live with there parents like to be in delayed development lower than the children who live without the parent to care, the frequencies are 34.3% and 50.0%, the P-value is equal to 0.021.

4) The characteristics of the children's families based on type of the family, size of the family, and family income with the child development assessment. The data collection is described by Table 16.

Table 16: Family characteristics (crosstabulation)

Characteristics	Result of development assessment				X^2	P value
	Normal development (n=122)		Delayed Development (n=88)			
	count	%	count	%		
1. Size of the families					2.743	0.254
- Small (2-4 members)	41	56.2	32	43.8		
- Middle (5-6 members)	61	63.5	35	36.5		
- Large (7 members or more)	20	48.8	21	51.2		
2. Family type					1.390	0.238
- Nuclear family	21	67.7	10	32.3		
- Extended family	101	56.4	78	43.6		
3. Family income					13.086	0.001
- Imbalanced and some debt	33	42.3	45	57.7		
- Balanced, no dept and no deposit	57	65.5	30	34.5		
- Balanced and some deposit	32	71.1	13	28.9		

Discussed by size of the families, the P-value is equal to 0.254, the children who live in the small sized families like to be in delayed development less than the children who live in the middle sized and the large sized families, but the statistics show that there are weak relationship between the size of the children's families and child development. Also with the family types of the children, the children of nuclear families like to be in delayed development lower than the children of the extended families, but the P-value of this characteristic is equal to 0.238, thus, there is few difference of the development of the children of both two types of families.

By the family incomes, the children who live in the families with high income and in the families with sufficiency income like to be in delayed development lower than the children who live in the families with low income and insufficiency, the P-value is equal to 0.001 and the X^2 is equal to 13.086, there is the strong relationship between this characteristic and child development.

5) Table 17 is the discussion that using the children access health care services and child development services compared with the assessment of child development.

Table 17: Access to health and developments services (crosstabulation)

Characteristics	Results of development				X^2	P value
	Normal development (n=122)		Delayed Development (n=88)			
	count	%	count	%		
1. Access to the health care services					0.001	0.971
- Health center	89	58.2	64	41.8		
- Other health care services	33	57.9	24	42.1		
2. Entered in Child Care Center					1.487	0.475
- Not entered	16	48.5	17	51.5		
- Child development centers	72	60.0	48	40.0		
- Kindergarten	34	59.6	23	40.4		

The children who access to the different levels of the health care services and the child development services are no difference of the levels of child development, for these two characteristics, the P-value are equal to 0.971 and 0.475, mean there are weak relationships between these two characteristics and child development.

Group 2: Birth, Nutrition and medical history

1) Table 18 presents the quality of antenatal care, format of child's delivery, duration of pregnancy and baby birth weight in relation to child development.

Table 18: Antenatal care and delivery process (crosstabulation)

Characteristics	Result of development				X^2	P value
	Normal development (n=122)		Delayed Development (n=88)			
	count	%	count	%		
1. Received the quality of antenatal					11.348	0.001
- By the standard of prenatal care	113	62.8	67	37.2		
- Mistimed prenatal	9	30.0	21	70.0		
2. Delivery process					2.877	0.090
- Normal delivery	94	55.3	76	44.7		
- Others	28	70.0	12	30.0		
3. Gestational age					0.016	0.900
- Full term	116	58.0	84	42.0		
- Premature	6	60.0	4	40.0		
4. Birth weight					0.004	0.949
- 2,500 g. or more	112	58.0	81	42.0		
- Lower than 2,500 g.	10	58.8	7	41.2		

The quality of antenatal care likes to relate with child development, the children of the mothers who received the 4 times of antenatal care are in delayed development for 37.2%, while the children of the mother who have not received the quality of antenatal care are in delayed development for 70.0%, the P-value is equal to 0.001, the statistics shows that between this characteristic and child development, there is the strong relationship.

The characteristics of the processes of delivery, the term of pregnancy, and child body birth weight, affecting on child development, but the statistics show that there are no relationships between them. The P-value of the processes of delivery is equal to 0.090, for the term of pregnancy is equal to 0.900, and for the children body birth weight is equal to 0.949.

6) Table 19 is discussed by using the health care information on maternal and child health promotion compared with the assessment of child development.

Table 19: Maternal and child heath care (crosstabulation)

Characteristics	Result of development				X^2	P value
	Normal development (n=122)		Delayed Development (n=88)			
	count	%	count	%		
1. Received breastfeeding					14.201	<0.001
- By the first 6 months or longer	62	73.8	22	26.2		
- Shorter than the first 6 months	60	47.6	66	52.4		
2. Received the appropriate supplemtary nutrition					16.242	<0.001
- 3 times a day	58	76.3	18	23.7		
- Less than 3 times a day	64	47.8	70	52.2		
3.Received Iodized salt					7.973	0.005
- Appropriated	78	66.7	39	33.3		
- Inappropriate	44	47.3	49	52.7		
4.Exposed to diseases interfering child development					16.310	<0.001
- Unexposed	120	62.2	73	37.8		
- Exposed	2	11.8	15	88.2		

The children who received child breastfed on the first six months of aged are in delayed development for 26.2%, less than the children who have received child breastfed shorter (52.4%), the P-value of this factor is <0.001, there is strong relationship between the child breastfed and child development. The relationship between the supplementary nourishment child development is so strong, the children who have received the appropriate supplementary nourishment are in delayed development lower than the children who have not received, the P-value is equal to <0.001. Also, the children who have received iodized-salt consuming like to be in delayed development lower than the children who have not received, the P-value is equal to 0.005. There were 17 children who exposed to the diseases that obstruct to child development are in delayed development 12 children, the frequency is 88.2%, higher than 37.8% of the children with unexposed to the disease obstructing on child development, the P-value is <0.001, this characteristic relates to child development so strong.

Group 3: Developmental environment

1) Discussed by using the children rearing patterns, encouraging on child development process compared with the assessment of child development. The data collection is described by Table 20.

Table 20: Child rearing patterns and development encouragement (crosstabulation)

Characteristics	Results of development				X^2	P value
	Normal development (n=122)		Delayed Development (n=88)			
	count	%	count	%		
1. Received the appropriate books to encourage on child development					27.015	<0.001
- Enough	79	76.0	25	24.0		
- Not enough	43	40.6	63	59.4		
2. Received the appropriate toys to encourage on child development					11.794	0.001
- Enough	88	71.3	43	28.7		
- Not enough	34	42.1	45	57.9		
3. Received the appropriate activities to encourage					18.220	<0.001
- Enough	82	71.3	33	28.7		
- Not enough	40	42.1	55	57.9		
4. Received the appropriate opportunities to encourage					18.954	<0.001
- Enough	89	70.1	38	29.9		
- Not enough	33	39.8	50	60.2		
5. Child rearing patterns					11.348	0.001
- Positive	38	79.2	10	20.8		
- Negative	84	51.9	78	48.1		

The children in the families that provide them the appropriate books for children, by the standard of UNICEF at least three books, are in delayed development 24.0%, lower than the children of the other families (59.4%),the P-value is <0.001 and X^2 is 27.015, it is very strong relationship between this characteristic and child development. Also, the families which provide their children the appropriate toys to encourage child development, by the standard of UNICEF at least three toys, make their children to be in normal development more than the other, the statistics show that the children in the families that provide them the appropriate toys for child development are in delayed development for 28.7%, while the children who have not received are in delayed development for 57.9% (P-value = 0.001).

The children in the families which encourage them by providing the appropriate activities to encourage on child development, by providing the appropriate opportunities, and raring them by using the positive child raring patterns, are in delayed development less than the opposites, P-values are equal to <0.001, <0.001 and 0.001, these characteristics relate to child development strongly.

2) Discussed by the factors of sanitary drinking water and children's hygiene behavior learning compared with the assessment of child development. The collected data are summarized in Table 21.

Table 21: Sanitary drinking water and personal hygiene (crosstabulation)

Characteristics	Result of development				X^2	P value
	Normal development (n=122)		Delayed Development (n=88)			
	count	%	count	%		
1. Received sanitary drinking water					12.618	<0.001
- Good sanitary drinking water	113	63.1	66	36.9		
- Poor sanitary drinking water	9	29.0	22	71.0		
2. Health behavior and hygiene					30.590	<0.001
- good	101	71.1	41	28.9		
- poor	21	30.9	47	69.1		

The children who received sanitary drinking water are in delayed development for 36.9%, and the children who have not received are in delayed development for 71.0%, the P-value is <0.001, that means the sanitary drinking water is so strong to relate with child development. And the children who received the self- care and hygiene learning to develop their health behavior, such as hand wash to protect them from the infectious diseases, are in delayed development lower than the opposites, the children with poor hygiene are in delayed development for 69.1%, the P-value is <0.001, it relates to child development strongly. The statistics show that sanitation is significant to child development very much.

3) To discuss the format of child rearing that there are, crises in the family, and child left alone with the assessment of child development. The data collection is described by Table 22.

Table 22: Crises in family (crosstabulation)

Characteristics	Results of development				X^2	P value
	Normal development (n=122)		Delayed Development (n=88)			
	count	%	count	%		
1. Family crises					0.443	0.506
- Without crises	104	59.1	72	40.9		
- With crises	18	52.9	16	47.1		
2. Child left alone					6.825	0.009
- No	114	61.3	72	38.7		
- Yes	8	33.3	16	66.7		

The children may not interesting on the adult's problems, it may be the reason why the crises in their families are not matter to them, the development of the children in the families with crises and in the families without crises are not difference, there are 40.9% for delayed development of the children in crises families and 47.1% for the children in without crises families, the P value is equal to 0.506. But when they are left alone, the children left alone are in delayed development for 66.7% higher than the

children without being left alone so much, for the children without being left alone, they are in delayed development for 38.7%, the P-value is equal to 0.009.

4) Discussed by the format the families with child development learning compared with the results of the assessment of child development. The collected data is described by Table 23.

Table 23: Knowledge and learning on child development (crosstabulation)

Characteristics	Results of development				X^2	P value
	Normal development (n=122)		Delayed Development (n=88)			
	count	%	count	%		
1. Caregiver knowledge on child development					11.058	0.001
- Good	92	66.2	47	33.8		
- Worst	30	42.3	41	57.7		

Most of the children in delayed development are the children who live in the families with uninteresting on the knowledge of child development, The children who live in these families are in delayed development for 57.7% and in normal development only 42.3%, in the other side, the children who live in the families which interesting on the knowledge of child development are in delayed development for 33.8%, in normal development for 66.2%. The Crosstabulation shows that the family knowledge is important to encourage on child development, the P- value is equal to 0.001.

Multiple Logistic Regression Analysis

The collected data is analyzed by using program SPSS. The Statistics using to analyze the relationships of the independent variables included factors that influence on the dependent variable included the development of the children aged 3-5 years in the service area of Muangphrai Primary Care Unit, is the Binary Logistic Regression. Because the development of children 3-5 years is Dichotomous Variable that the valuable data is only 2 types, normal development = 0 and delayed development = 1. In this research, the variables that the researcher would like to study are followings:

1) Dependent variable is the results of child development of children aged 3-5 years in the service areas of Muangphrai Primary Care Unit. The value of child development is classified to be 2 types, 0 = Normal Development and 1 = Delayed Development.

2) Independent variables, the researcher has divided the independent variables into the data sets. Then, study the relationship between each set of data with the dependent variable. The data group sets are classified by using the results of Chi-square analysis in the steps of crosstabulations descriptive, the independent variables that to be analyzed in this step are collected from the variables that there are trends to relate with child development, the collected variables are the variables with P<0.20. The reason for this choice of p-value cutoff was to provide a reasonable opportunity for variables that were originally non-significant to become significant in multiple logistic models. And the researcher has specified the variables to be 3 groups, to analyze by the Logistic Regression;

Group 1: Socio demographic

The related variables collected from the crosstabulation analysis are; Sex (P-value = 0.086), Age (P-value = 0.046), Age of the father (P-value = 0.075), Child order number (P-value < 0.001), Child's resident area (P-value < 0.001), Main child care giver (P-value = 0.007) and Family income (P-value = 0.001),

Group 2: Birth, nutrition and medical history

The related variables cut from the crosstabulation analysis are; Quality of antenatal care (P-value = 0.001), Delivery process (P-value = 0.090), Child breastfed received (P-value = 0.001), Supplementary nourishment received (P-value < 0.001), Iodized-salt consuming (P-value = 0.005) and Unexposed to the diseases obstructing child development (P-value < 0.001).

Group 3: Developmental environment

The related variables cut from the crosstabulation analysis are; Appropriate books for children received (P-value < 0.001), Appropriate toys for children received (P-value < 0.001), Family activities encouraging child development (P-value < 0.001), Opportunities encouraging child development received (P-value < 0.001), Child rearing patterns (P-value = 0.001), Sanitary drinking water (P-value < 0.001), Hygiene behavior (P-value < 0.001), Child left alone (P-value = 0.009) and Family knowledge on child development (P-value = 0.001)

The followings are the variables in the equation that analyzed by using the statistics Logistic Regression to find the relationships of the factors affecting on child development. Calculated by 3 steps of Logistic Regression to find the accurate as possible, there are the steps of Preliminary logistic regression models, Semi- final logistic regression model, and Final logistic regression model;

Step 1: Preliminary logistic regression models

Group 1: Socio demographic

Eight variables of the socio demographic variables are analyzed by the Multiple Logistic Regression, This step, the statistics reports as the following table.

Table 24: Preliminary logistic regression model for socio-demographic variables (model X^2 (8 df) = 62.78, p<0.001)

	B	Odds ratio (exp(B))	95% confidence interval	P-value
Sex (female vs. male)	-0.66	0.52	0.26 to 1.00	0.051
Age (categorical, X^2 (2 df) = 9.09, p=0.011)				0.011
3 yrs vs. 5 yrs.	0.36	1.43	0.62 to 3.30	0.399
4 yrs vs. 5 yrs.	1.24	3.44	1.48 to 8.06	0.004
Birth order (the other vs. the first)	1.45	4.24	2.06 to 8.73	<0.001
Residence area (Local Administration vs. Municipal)	1.12	3.06	1.58 to 5.93	0.001
Father's age (35 and more than vs. less than	0.26	1.29	0.63 to 2.66	0.48
Main care giver (categorical, X^2 (2df) = 9.91, p=0.007)				0.039
Mother only vs. other	-0.95	1.57	0.10 to 1.46	0.162
Mother and father vs. other	0.45	1.99	0.44 to 5.65	0.488
Parents' status, the child live with (non parents vs. all parents)	0.69	0.59	0.63 to 0.93	0.240
Family income (Balanced vs. Imbalanced)	-0.53	0.17	0.37 to 0.93	0.023
Constant	-4.10			0.014

Group 1: Socio demographic variables that analyzed by the statistics are shown by the table above, the variables collected to be continued on the next steps of Logistic Regression Analyses are; Sex (P-value = 0.051), Age (P-value = 0.011), Child's order number (P-value < 0.001), Residence area (P-value = 0.001), Main care giver (P-value = 0.039), Family income (P-value = 0.023). And the variables cut off the consideration are; Father's age (P-value = 0.483) and the parents' status (P-value = 0.240).

Group 2: Birth, nutrition and medical history

Six variables of group 2: birth, nutrition and medical history are selected from the discussion of the Crosstabulation statistics, they are the variables relating with child development. Analyzed by this step, Multiple Logistic Regression, the statistics reports as the following table;

Table 25: Preliminary logistic regression model for birth, nutrition, medical history variables (model X^2 (6 df) = 52.12, p<0.001)

	B	Odds ratio (exp(B))	95% confidence interval	P-value
Content of antenatal care (lower than the quality vs. by the quality)	0.93	2.53	1.00 to 6.40	0.051
Delivery process (other processes vs. normal delivery)	-0.83	0.44	0.18 to 1.07	0.070
Child breastfed (less than 6 months vs. by the first 6 months)	0.91	2.50	1.28 to 4.85	0.007
Supplementary nourishment (inappropriate vs. appropriate)	0.96	2.62	1.32 to 5.20	0.006
Iodized-salt consuming (inappropriate vs. appropriate)	0.52	1.68	0.89 to 3.14	0.107
Unexposed to the diseases (exposed vs. unexposed)	2.42	11.23	2.21 to 57.03	0.004
Constant	-6.84			<0.001

Group 2: The variables of birth, nutrition and medical history of the children that analyzed by the statistics are shown by the table 26, the variables collected to be continued on the next steps of Logistic Regression Analyses are all of them; Content of antenatal care (P-value = 0.051), Delivery process (P-value = 0.070), Child breastfed (P-value = 0.007), Supplementary nourishment (P-value = 0.006), Iodized-salt consuming (P-value = 0.107), Unexposed to the diseases (P-value = 0.004).

Group 3: The developmental environment

The variables of group 3: developmental environment, these variables are so important for the family to provide and to serve for their children. Selected from the discussion of the Crosstabulation statistics, the variables of these groups are; appropriate books for children received, appropriate toys for children received, family activities encouraging child development, appropriate opportunities received, sanitary drinking water, hygiene learning and health behavior, family's child rearing patterns, children left alone, family knowledge on child development. And as the follows are the results of data analyzing in the step of preliminary multiple logistic regression model, total 9 variables;

Table 26: Preliminary logistic regression model for developmental environment variables (model X^2 (9df) = 76.95, p<0.001)

	B	Odds ratio (exp(B))	95% confidence interval	P-value
Received appropriate books for children (not enough vs. enough)	0.75	2.12	0.89 to 5.04	0.090
Received appropriate toys for children (not enough vs. enough)	0.38	1.47	0.61 to 3.56	0.395
Received appropriate activities (not enough vs. enough)	0.26	1.30	0.60 to 2.82	0.513
Received appropriate opportunities (not enough vs. enough)	0.90	2.47	1.17 to 5.22	0.018
Child rearing patterns (negative vs. positive)	0.26	1.30	0.49 to 3.45	0.599
Received sanitary drinking water (poor vs. good)	1.71	5.53	2.06 to 14.89	0.001
Health behavior and hygiene learning (poor vs. good)	1.41	4.08	1.94 to 8.57	<0.001
Child left alone (yes vs. no)	0.71	2.04	0.70 to 5.91	0.191
Family knowledge on child development (poor vs. good)	0.41	1.52	0.68 to 3.34	0.307
Constant	-9.37			<0.001

Group 3: The variables of developmental environment of the children that analyzed by the statistics are shown by the table 27, the variables collected to be continued on the next steps of Logistic Regression Analyses, 5 from 9 variables, are; Received appropriate books for children (P-value = 0.090), Received appropriate opportunities (P-value = 0.018), Received sanitary drinking water (P-value = 0.001), Health behavior and hygiene (P-value < 0.001), Child left alone (P-value = 0.191).

And four variables cut off are; Received appropriate toys for children (P-value = 0.395), Received appropriate activities (P-value = 0.513), Child rearing patterns (P-value = 0.599), Family knowledge on child development (P-value = 0.307).

Step 2: Semi-final logistic regression model

This step, the variables cut from the first step are selected to analyze. They are seventeen variables that P-values are lower than 0.200, 6 variables are cut from group 1: Socio demographic variables, 6 variables are cut from the Preliminary model of group 2: birth, nutrition and medical history, and group 3: developmental environment are cut for 5 variables. Thus, this step, there are seventeen variables that taken to analyze by the semi-final logistic regression model, they are; Sex (P-value = 0.049), Age (P-value = 0.011), Child's order number (P-value < 0.001), Residence area (P-value = 0.001), Main care giver (P-value = 0.007), Family income (P-value = 0.008), Content of antenatal care (P-value = 0.001), Delivery process (P-value = 0.090), Child breastfed (P-value < 0.001), Supplementary nourishment (P-value <0.001), Iodized-salt consuming (P-value = 0.005), Unexposed to the diseases (P-value < 0.001), Received appropriate books for children (P-value = 0.090), Received appropriate opportunities (P-value = 0.018), Received sanitary drinking water (P-value = 0.001), Health behavior and hygiene (P-value < 0.001), Child left alone (P-value = 0.191).

And the table below is the report of the semi-final logistic regression model for variables in the Equation.

Table 27: Semi-final logistic regression model for variables in the Equation (model X^2 (19df) = 144.13, p<0.001)

	B	Odds ratio (exp(B))	95% confidence interval	P-value
Socio demographic				
Sex (female vs. male)	-0.82	0.44	0.18 to 1.07	0.071
Age (categorical, X^2 (2 df) = 6.76, p=0.034)				0.034
3 yrs vs. 5 yrs.	0.18	1.19	0.35 to 4.03	0.776
4 yrs vs. 5 yrs.	1.34	3.81	1.21 to 12.05	0.023
Birth order (the other vs. the first)	2.14	8.54	3.03 to 24.13	<0.001
Residence area (Local Administration vs. Municipal)	0.85	2.34	0.92 to 5.92	0.074
Main care giver (categorical, X^2 (2df) = 4.50, p=0.105)				0.105
Mother only vs. other	-1.13	0.32	0.08 to 1.23	0.098
Mother and father vs. other	0.37	1.45	0.45 to 4.62	0.543
Family income (Balanced vs. Imbalanced)	-0.02	0.98	0.49 to 1.96	0.947
Birth, nutrition, medical history				
Content of antenatal care (lower than the quality vs. by the quality)	1.80	6.05	1.49 to 24.54	0.012
Delivery process (other processes vs. normal delivery)	-1.36	0.26	0.08 to 0.86	0.027
Child breastfed (less than 6 months vs. by the first 6 months)	1.22	3.39	1.21 to 9.51	0.020
Supplementary nourishment (inappropriate vs. appropriate)	1.03	2.80	1.03 to 7.60	0.043
Iodized-salt consuming (inappropriate vs. appropriate)	-0.52	0.59	0.23 to 1.52	0.275

Table 27: Semi-final logistic regression model for variables in the Equation (model X^2 (19df) = 144.13, p<0.001) (con.)

	B	Odds ratio (exp(B))	95% confidence interval	P-value
Unexposed to the diseases (exposed vs. unexposed)	3.08	21.72	2.85 to 165.67	0.003
Developmental environment				
Received appropriate books for children (not enough vs. enough)	1.05	2.86	1.05 to 7.80	0.040
Received appropriate opportunities (not enough vs. enough)	1.25	3.48	1.28 to 9.49	0.015
Received sanitary drinking water (worst vs. good)	1.95	7.04	1.81 to 27.31	0.005
Health behavior and hygiene learning (poor vs. good)	1.71	5.54	2.04 to 15.02	0.001
Child left alone (yes vs. no)	0.16	1.18	0.30 to 4.60	0.814
Constant	-18.82			<0.001

Explanation by the semi-final logistic regression model, the variables that P-values lower than 0.200 are selected to be analyze by the next step, they are fourteen variables include; Sex (P-value = 0.071), Age (P-value = 0.034), Child's order number (P-value < 0.001), Residence area (P-value = 0.074), Main care giver (P-value = 0.105), Content of antenatal care (P-value = 0.012), Delivery process (P-value = 0.027), Child breastfed (P-value = 0.020), Supplementary nourishment (P-value = 0.043), Unexposed to the diseases (P-value = 0.003), Received appropriate books for children (P-value = 0.040), Received appropriate opportunities (P-value = 0.015), Received sanitary drinking water (P-value = 0.005), and Health behavior and hygiene (P-value = 0.001). And the excluded variables are; Family income (P-value = 0.947), Iodized-salt consuming (P-value = 0.275), and Child left alone (P-value = 0.814).

Step 3: Final logistic regression model

This step, the variables cut from the first step are selected to analyze. They are fourteen variables that P-values are lower than 0.200, the variables that cut from group 1: Socio demographic variables are 5 variables, from group 2: birth, nutrition and medical history are 5 variables, and from group 3: developmental environment are 4 variables. Thus, this step, there are fourteen variables taken to analyze by the final logistic regression model. The results are in the table below;

Table 28: Final logistic regression model for variables in the Equation (model X^2 (16df) = 142.76, p<0.001)

	B	Odds ratio (exp(B))	95% confidence interval	P-value
Socio demographic				
Sex (female vs. male)	-0.79	0.45	0.19 to 1.09	0.077
Age (categorical, X^2 (2 df) =6.29, p=0.043)				0.043
3 yrs vs. 5 yrs.	0.17	1.18	0.36 to 3.86	0.784
4 yrs vs. 5 yrs.	1.25	3.49	1.15 to 10.61	0.027
Birth order (the other vs. the first)	2.07	7.89	2.87 to 21.66	<0.001
Residence area (Local Administration vs. Municipal)	0.78	2.19	0.87 to 5.47	0.095
Main care giver (categorical, X^2 (2df) = 4.31, p=0.116)				0.116
Mother only vs. other	-1.10	0.33	0.09 to 1.25	0.104
Mother and father vs. other	0.35	1.42	0.45 to 4.51	0.550
Birth, nutrition, medical history				
Content of antenatal care (lower than the quality vs. by the quality)	1.73	5.67	1.48 to 21.67	0.011
Delivery process (other processes vs. normal delivery)	-1.31	0.27	0.81 to 0.90	0.033
Child breastfed (<6 months vs. ≥6 months)	1.19	3.28	1.19 to 9.06	0.022

Table 28: Final logistic regression model for variables in the Equation (model X^2 (16df) = 142.76, p<0.001) (con.)

	B	Odds ratio (exp(B))	95% confidence interval	P-value
Supplementary nourishment (inappropriate vs. appropriate)	1.00	2.72	1.01 to 7.30	0.047
Unexposed to the diseases (exposed vs. unexposed)	3.01	20.32	2.64 to 156.45	0.004
Developmental environment				
Received appropriate books for children (not enough vs. enough)	0.94	2.55	1.01 to 6.40	0.047
Received appropriate opportunities (not enough vs. enough)	1.22	3.40	1.29 to 8.98	0.013
Received sanitary drinking water (poor vs. good)	1.93	6.91	1.83 to 26.12	0.004
Health behavior and hygiene learning (poor vs. good)	1.63	5.10	1.96 to 13.28	0.001
Constant	-18.72			<0.001

Explanation by the final logistic regression model, there are variables that predicted to be the factors affecting child development in a statistically significant fasion. These variables are discussed below.

1) Age of the children

Age of the children related to be the factor that affecting on child development, the analysis of final logistic regression model shows that the children 5 years are forecasted to be in delayed development lower than the children aged 3 years and the children aged 5 years are forecasted to be in delayed development lower than the children aged 4 years, the multiple logistic regression predicts that, the P-value for this variable is equal to 0.043 at the level of 95% confidence intervals, the children aged 5 years are suspected to be delayed development lowest.

2) Child order number

The children in this research are the children of the parents of Thai Family Planning Project, they planning to have only 2 children, thus, in this research, the number of third children, fourth children or the later is so little, the research must add them to be in the second. Discussed with child development, The P-value of the variable child order number is equal to < 0.001 at the level of 95% confidence intervals. The second children or later are predicted to be in delayed development higher than the first child. The odd ratio of this variable is 7.89. This means the association to child development is very strong.

3) Quality of an antenatal care

The mother should have received the quality of antenatal care for the good health of the fetus, for the good health of the mother, for saving both fetus and mother's life from the complications, and we often expect that receiving the quality of the antenatal care can encourage on child development, this research reports that the P-value of the quality of antenatal care is equal to .011 at the level of 95% confidence intervals, this showing specifies that there is strong relationship between the quality of antenatal and child development, the statistics predicted that the women who have received the quality of antenatal care influencing on their children to be in delayed development lower than the women who have not received this variable. By the quality of antenatal care, Odd ratio is equal to 5.67. There is strong association to child development.

4) Delivery process

Analyzed by the Multiple Logistic Regression, the P-value of variable delivery process is equal to 0.033, means there is relationship between delivery process and child development. It is interesting data that odd ratio of this variable is equal to 0.27. This report explains that the children who born by the normal delivery process are in delayed development higher than the children who born by the other processes.

5) Child breastfed

From this report, the majority of the children in the research area have received child breastfed inappropriately, while, the variable in the equation shows that the child breastfed is forecasted to be the factor affecting child development, the P-value is equal to 0.022, odd ratio is equal to 3.28, the data explain that there is very strong

association between child breastfeeding and child development, the children whom received appropriate child breastfed for first six months of age are expected to be in delayed development lower than the other.

6) Supplementary nourishment

The children who have not received the supplementary nourishment appropriately are forecasted to be in delayed development higher than the other. The statistics predicts that there is some difference between the appropriate and the inappropriate to child development, odd ratio is equal to 2.72, and the relationship between the variable and child development is so strong, the P-value is equal to 0.047.

7) Exposed to the diseases obstructing child development

The children who exposed to the diseases obstructing child development are forecasted to be in delayed development higher than the children with unexposed, Discussed by the Logistic Regression, the P-value of this variable is equal to 0.004 at the level of 95% confidence intervals, odd ratio is equal to 20.32, there is looked very strong relationship between child development and this variable, but the statistics might be wrong, thus the researcher have tested to find the accuracy of the statistics by to take off this variable from the model, but the direction of the association for the variables in the changed model is not different, the other variables are so same like the model that analyzed by the model analyzed with this variable, an observation for this variable is the number of the exposed children in this report is so very little, there are 17 children are exposed to the diseases, 2 children are in normal development and 15 children are in delayed development. This research confirms that the factors of exposed to the diseases obstructing on child development is affecting child development significantly.

8) Appropriate books for children received

Discussed by the Binary Logistic Regression, the P-value of this variable is equal to 0.047 at the level of 95% confidence intervals, odd ratio is 2.55, they explains that the appropriate books for children is the variable that forecasted to be the factor affecting child development, the children who have received the books for children inappropriately are trended to be in delayed development higher than the other, the association is so strong.

9) Appropriate opportunities received

Appropriate opportunities encouraging child development received is predicted to be the factor affecting child development. The P-value of this variables is equal to 0.013 at the level 95% confidence intervals, means that the children who have not received the appropriate opportunities from their family to discover the new experiences themselves, are predicted to be in delayed development increasingly. Odd ratio is equal to 2.55, shows that there is strong association between this variables and child development.

10) Sanitary drinking water

Interesting variable, drinking water can affect on child development, the children who have received the good quality drinking water are predicted to be in delayed development lower than the children who have no received. The P-value of this variable is equal to 0.001 at the level of 95% confidence. By the statistics, quality of drinking water is forecasted to be the factor affecting child development. Odd ratio is so high, it is 6.91, it shows that there is very strong relationship of the quality of sanitary drinking water and child development.

11) Hygiene learning and health behavior

Hygiene learning in children makes the children to be good in health behavior, the desirable behavior for children such as, hand washing, toilet safety using, can prevent many infectious diseases, the statistics shows that this variable is predicted to be the factor affecting child development, the P-value is equal to <0.001 at the level of 95% confidence. Odd ratio is equal to 5.10, it explains to the strong association of this variable to child development.

Conclusion

Explanation by the logistic regression, the variables that predicted to be the factor affecting child development are; Age (P-value = 0.043), Child's order number (P-value < 0.001), Content of antenatal care (P-value = 0.011), Delivery process (P-value = 0.033), Child breastfed (P-value = 0.022), Supplementary nourishment (P-value = 0.047), Unexposed to the diseases (P-value = 0.004), Received appropriate books for children (P-value = 0.047), Received appropriate opportunities (P-value = 0.013), Received sanitary drinking water (P-value = 0.004), and Health behavior and hygiene (P-value = 0.001).

Conclusion : Movement of the independent variables

The following tables present movement of the independent variables among the 4 analytical steps described above. By table 29, the situations of some variables are changed when they are analyzed by 4 steps of statistics analysis.

Group 1: Socio demographic

Table 29: Movement of the Socio demographic variables

Variable	Step			
	Crosstabs	MLR*1	MLR2	MLR3
1. Sex	NS**	NS	NS	NS
2. Age	S***	S	S	S
3. Birth order	S	S	S	S
4. Residence area	S	S	NS	NS
5. Size of village	NS	-†	-	-
6. Age of the father	NS	NS	-	-
7. Education level of the father	NS	-	-	-
8. Age of the mother	NS	-	-	-
9. Education level of the mother	NS	-	-	-
10. Main child care giver	S	S	NS	NS
11. Education level of child care giver	NS	-	-	-
12. Status of parents	S	NS	-	-
13. Size of family	NS	-	-	-
14. Family type	NS	-	-	-
15. Family income	S	S	NS	-
16. Accessed to the health care services	NS	-	-	-
17. Entered in Child Care Center	NS	-	-	-

* Multiple logistic regression

** Not significant, $p>0.05$

*** Significant, $p\leq0.05$

† Not entered in model

Group 2: Birth, nutrition and medical history

Table 30: Movement of birth, nutrition and medical history variables

Variable	Step			
	Crosstabs	MLR1	MLR2	MLR3
1. Quality of the antenatal care	S	NS	S	S
2. Delivery process	NS	NS	S	S
3. Gestational age	NS	-	-	-
4. Birth weight	NS	-	-	-
5. Received breastfeeding	S	S	S	S
6. Appropriate supplementary nutrition	S	S	S	S
7. Received Iodized salt	S	NS	NS	-
8. Exposed to diseases interfering	S	S	S	S

Group 3: Developmental environment

Table 31: Movement of developmental environment variables

Variable	Step			
	Crosstabs	MLR1	MLR2	MLR3
1. Appropriate books for children	S	NS	S	S
2. Appropriate toys for children	S	NS	-	-
3. Appropriate activities to encourage	S	NS	-	-
4. Appropriate opportunities	S	S	S	S
5. Child rearing patterns	S	NS	-	-
6. Sanitary drinking water	S	S	S	S
7. Health behavior and hygiene	S	S	S	S
8. Family Crises	NS	-	-	-
9. Child left alone	S	NS	NS	-
10. Knowledge on child development	S	NS	-	-

CHAPTER V
SUMMARY, DISCUSSION AND RECOMMENDATIONS

Summary

This was a cross-sectional study. The main research goal was to ascertain factors associated with development of the children aged 3-5 years in the service area of Muangphrai Primary Care Unit, Selaphum District, Roi-Ed Province. In the final logistic regression model, the following 11 variables were statistically significantly associated with delayed development:

2.1 Socio demographic: Socio demographic variables that the statistics predicts that they are specified to be the factors affecting on child development are;

1) Age of the children: the children aged 5 years are suspected to be delayed development lower than the children aged 3 and 4 years

2) Child order number: The second child or later are predicted to be in delayed development higher than the first child.

2.2 Birth, nutrition and medical history; The statistics predicts that development of the children aged 3-5 years in the service area of Muangphrai Primary Care Unit are affected by the variables;

1) Quality of an antenatal care: Receiving the quality of the antenatal care can encourage on child development, this research predicted that the women who have received the quality of antenatal care influencing on their children to be in delayed development lower than the women who have not received.

2) Delivery process: The relationship between delivery process and child development is the children who born by the normal delivery process are in delayed development higher than the children who born by the other processes.

3) Child breastfed: The association between child breastfeeding and child development is the children whom received appropriate child breastfeeding for first six months of age are expected to be in delayed development lower than the other.

4) Supplementary nourishment: The children who have not received the supplementary nourishment appropriately are forecasted to be in delayed development higher than the other.

5) Exposed to the diseases obstructing child development: The children who exposed to the diseases interfering child development are forecasted to be in delayed development higher than the children with unexposed.

2.3 Developmental environment; for this group, the statistics shows that the developmental environment variables which predicted to be the factors affecting child development are;

1) Appropriate books for children received: The children who have received the books for children insufficiently are trended to be in delayed development higher than the children who have received sufficiently.

2) Appropriate opportunities encouraging child development received: The children who have not received the appropriate opportunities are predicted to be in delayed development higher than the other.

3) Sanitary drinking water: The children who have received sanitary drinking water are predicted to be delayed development lower than the children who have received insufficiently.

4) Hygiene learning and health behavior: Good health behavior and hygiene can affect child development. The children of good health behavior and hygiene are suspected to be delayed development lower than the children of poor hygiene and poor health behavior.

Discussion

1. Discussion to the situation of child development

The report of health situation of the Ministry of Public Health, the assessment of child development in Thailand in 2006 was 67.7%. This report reports that the child development situation of the children in the service area of Muangphrai Primary Care Unit is lower than the overage of Thailand, it is only 58.1%, besides, this is lower than 80% of the goal of Healthy Thailand Project.

The assessment of child development in this research used the Anamai'49 to assess, while the assessment of child development in the referenced reports used the DENVER II, by these different tools may report the deferent result, but there are importance that the Anamai'49 is also applied from DENVER II, although it is more imprecise but the Health Department of Thailand guarantees that it is certain to be the

public health tool. The child development situation in Muangphrai Primari care unit is also in the same situation like in the North-eastern, lower than the overage of its country.

2. Discussion to the Factors affecting child development

There is widely understand about what factors could affect on child development, what factors could support the children to be in normal development, but there are some factors that the researcher interested to study increased because there are no research study in the past, such as, the sanitary drinking water variable and the hygiene learning and health behavior of the children. The research results are discussed by the references, to support or to oppose the documents and the research reports related, as the followings;

1) This study reports that, the quality of antenatal care is a factor affecting on child development. Kathryn Kost et al. studied about the effects of the pregnancy planning status affected on birth outcomes and infant care, found that, the proportion of infants born with a health disadvantage was significant if the pregnancy was intended lower than if it was mistimed. The research concluded that knowing the planning status of a pregnancy could help identify women who might need support to engage in prenatal behaviors that were associated with healthy outcomes and appropriate infant care.

This report consists with the report of Duanghathai Janchau, which studied about the factors influencing on the development of children aged 0-5 years in the North of Thailand and found that the receiving quality of antenatal was a factor that affecting child development properly. By antenatal with non-reached quality or the mothers with non-antenatal, their children might be in delayed development more than the other.

2) The effects of breastfeeding at least the first 6 months is a factor that affecting on child development. This information corresponds to the research report of P.J. Quinn et al, which studied about the effect of breastfeeding on child development and found that, a strong positive relationship was demonstrated between breastfeeding and the child development by increasing scores of development with increased duration of breastfeeding. The research concluded that these findings suggested a significant benefit to child development was conferred by breastfeeding and was related independently to longer periods of breastfeeding.

The research report of Kathryn Kost et al. found that the pregnancy planning status was correlated with the duration of breastfeeding. The women who received the quality of antenatal were likely to be the mothers reared their children at least the first six months breastfeeding for their children.

3) The children with congenital diseases such as Anemia, Thalassemia, Malnutrition disease, tend to be in delayed development more than the children with un-exposed to these diseases. This report consists with the report of Susan P. Walker which found the relationship between iron deficiencies in children with delayed development conditions. The report found, the children with iron deficiency were supposed to be in delayed development more than the children with un- exposed to iron deficiency.

4) This research reports that, the effects of the appropriate supplementary foods for children affect on child development by the children who have received supplementary food properly are supposed to be in normal development more than the children with inappropriate. Most of the children in Maungphrai Primary Care Unit have not received the appropriate supplementary foods enough. They have received the same foods like their families, and most of the foods of the people in the Northeastern are not suitable for children.

5) The problems of the sanitary drinking water or personal hygiene issues such as the clean food for health, the hand washed for hygiene etc., are the causes of infectious diseases in children. Of course, these diseases are obstructing on child development, so this report confirms that the child personal hygiene and the sanitary drinking water suppliers in their families are the fundamental factors affecting child development.

6) The residence area of the children is a factor that affecting on child development. The research reports that, the variables of children's residence areas, specified by the administrative district characters where the children live, are the factors could not affect on child development. The children who live in the urban area of the Municipal of Muanphrai Sub-district are in delayed development only a few difference compared with the children who live in the rural area of the Local Administration of Bungklua Sub-district.

Duanghathai Janchua (2005), reported on the preparation of development by the residence location. The research reported that the children who live in the rural areas were in delayed development more than the children in the urban areas. The children who lived in the rural were in normal development for 64.4%, while, the children who lived in the residence located in the urban areas were in normal development for 72.83%. But discussed by this research, there are 2 different districts in this research area, an urban area is for the Municipal of Muanphrai Sub-district, and a rural area is for the Local Administration of Bungklua Sub-district. The people in both sub-districts live in these two areas by few different levels of the health encouragement, this variable could not affect on child development in the different levels.

7) The factor family's incomes, This study reports that, The children who live in the families with sufficient incomes and the children who live in families with sufficient and some deposits are likely to be in delayed development a few difference level compared with the children who live in the families with low income and insufficiency.

This research report opposes with the research results of Sally Grantham McGregor et al. which studied on child development in developing countries, the report showed that the poverty was associated with the inadequate food, poor sanitation and poor hygiene, the causes were leading to the condition infectious diseases and stunting in the children. Poverty was also correlated with the maternal education, the strained and the depression conditions in the mothers. The research reported that the development of children in the developing countries was exposed to many risk factors correlated with the poverty closely. Also, this report had consisted with the report of the Ministry of Public Health which reported that the children in the northeastern region of Thailand were likely to be in delayed development more than the other regions. And in the same time, compared by the income of the people per capita, the people in the Northeast are the lowest people specified by the average revenue per years.

8) This research is conflicting to the report of Duanghathai Janchau, in the issue of the variable body birth weight, In the report of Duanghathai Janchau confirmed that the children with body birth weight more than 2,500 gram were in

normal development more than the children with body birth weight less than 2,500 gram. And the effect of the term of pregnancy, this research reports that it is not significant to child development, this conclusion is corresponded by the same report.

9) While, this study reports that the effect of Iodized-salt used is not a factor affecting the child development. This report conflicts to the research of Irene Velasco who studied about the effect of iodine prophylaxis during pregnancy on neuro-cognitive development of children and concluded that the dietary iodine supplements did not only have no harmful effected on the neurodevelopment of the children, they may even be beneficial. However, this research reports the effect of using Iodized-salt in the current time which on the children at the presented time aged 3-5 years old. The study is not based on the using of Iodized salt at the duration of the pregnancy. The mothers who had not received Iodized-salt during the pregnancy would be influenced to their children on child development especially.

10) The development of the children aged 3-5 years in Muangphrai Primary Care Unit also affected by the factor of sanitary drinking water and child's personal hygiene, the statistics reports that the children who have received the sanitary drinking water properly and who supported to the good personal hygiene properly are likely to be in normal development more than the children who have not received the factors at the significant level 0.5.

11) The factor crises in the children's families, the children's families in crises are the families with chronic patients, alcohol drunken or drug addiction, un-employed members. The statistics reports that this factor does not influence on development of the children. This report disagrees to the report of Suthum Nuntamongkolchai et al. (2004), which studied about the critical in the families related with preschool child and primary school child development in Bangkok, Burirum, Phrae, and Saraburi and reported that, the family crisis was statistically significant association with child rearing and development of pre-school children. The children who lived in the families with crises had the proportion of poor supportive rearing and suspected to be in delayed development higher than the children who lived in families without crises.

3. Discussion to the methodology

1) In this research, the researcher has classified the variables to be 3 groups; they are Socio demographic, Birth, nutrition and medical history, and

Developmental environment. The variables were selected from the Maternal and Child Care Handbook, and the other research reports about the factors relating to child development, and then classified in to 3 groups. Even so, this scheme was not the same as that used in some other related research, so findings may differ somewhat.

2) There are many factors that affecting on the process of early child development and in this research, the researcher who works in the broad scope, but no depth of public health in the rural area, is interesting in all factors and made the researcher cannot neglect any factors from the consideration. By the barriers to assess the child development such as the knowledge on the child development of the officer, their potential in this issue, made the researcher cannot use the best measurement tool of child development assessment DENVER II to assess the child development in this research. Used DENVER II to assess child development needs the pediatrician to diagnose, needs more time, needs more budgets. And although the Anamai'49 is only used for primary screening, it is easy to assess by the nurse and its result is guaranteed that there is few difference from DENVER II. However, by Anamai'49, the results are not use for the final diagnosis that the children are delayed development or normal development.

3) collected the data in the field, the questionnaire is containing many questions, the researcher developed it from many variables needed to analyze, that caused the researcher could not make the questionnaires in to the depth of each variables. It is possible, the following research should be studied in to the depth of each factor and should be used the DENVER II to assess child development for the maximum accuracy.

Recommendation

The factors affecting on development of the children aged 3-5 years in the service area of Muangphrai Primary Care Unit, in the summary of this research are several factors similar to other research studies in the previous. In the studies of foreign, tend to stay closed all problems to terminate on the poverty problem, because the poverty is the important part of the cycle of the worse health.

In Thailand, even though many people still struggle with the poverty, but the government has organized the public health care services by looking forward to access health thoroughly while they held each other in many welfare services through the local administration organizations. Therefore, poverty is not a problem of the development of all children age 3 - 5 years if only their quality services effectives and services are done over the coverage. This report is a proposal for the public health officials and the local administration organizations in the areas. The recommendations are the followings;

1. Family and child development

1) Muangphrai Primary Health Care Unit should aim to encourage the child development from the period of pregnancy. To educate mothers who going to the prenatal care clinic about all knowledge required in the maternal and child care handbook and be confidence that the knowledge will be applicable.

2) Muangphrai Primary Health Care Unit should improve the process of prenatal care to be coverage all pregnant women. Because the coverage rate of pregnant prenatal visits also lower than the goal, and should find the ways to encourage the mothers to provide their children breastfeeding at least the first 6 months of life of their children, and to encourage using the supplementary nourishment for children appropriately by the age of the children.

3) Research results shows that the project of One Family Two Children is still need. The second and the later child order are suspected to be in delayed development higher than the first. This project is successful in Thailand and Thai family should be going on this concept.

2. Community and child development

1) The local administration organizations should provide the jobs in the communities for the breastfeeding woman properly, the jobs must be appropriate for them to work near their home, and must be on good benefits, by this way, the children aged first six months may receive the breastfed appropriately.

2) The local administration organizations in the Muangphrai Primary Health Care Unit should make the children playgrounds in the communities or in the villages. To serve the children the appropriate opportunities to encourage the child development, the children should have the playground and playthings with the security standards to scramble and play to improve their skills. The appropriate activities at

home such as the scramble on a table or home stairs are not secured. The parents might consider the activities at home unsafe for children, and often give their children the inappropriate opportunities to behave as they age.

3) The local administration organizations in the Muangphrai Primary Health Care Unit should improve the drinking water supplier systems in the communities by develop the public using water systems in the villages to be used as the quality, safety drinking water. In the present time, many people in many villages are received the drinking water suppliers which unsafe to drink. They received the water from the water pipe systems of the villages which unclean and inappropriate. The resources of the water systems are the surface water which non- quality improvement processes.

4) The local administration organizations must not forget that the problems of child development are not little if many children are in delayed development like the present. They should expedite the determinate agenda to resolve the problems, budgeting more, should plan and set the guidelines clearly to finish that goal.

5) To encourage the families or the people all villages to be hygienic people, to develop the communities to be good sanitary social. All of the developments can do by training health sanitation courses and conducted health behavior changed programs to the people.

4. Further study

We can use the research results to extend for the further studies to delve into the details of child development. Many issues are matters of interested, the implementation of this research are interested to apply to be the projects of the encouragement of child development as follows:

1) The researcher should study for seek the trends to encourage antenatal care services to serve the quality of antenatal care to all families, because there are the a little number of the mothers who lives with their children, most of the children in this research area live in the families with their grandparents, without their parents, and the knowledge on child care and child rearing of the families is learnt

only during the period time of antenatal care. The project that the researcher accepts to do is All Families Antenatal Care Project. The researcher should study about the ways to success by this process.

2) The factors of sanitary drinking water that affecting on child development are interested, the researcher should be study furthermore, and what are the factors that this factor related together to affect on child development.

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APPENDICES

APPENDIX A

Thai-language Questionnaire

แบบสัมภาษณ์

การวิจัย ปัจจัยด้านครอบครัวที่มีอิทธิพลต่อพัฒนาการเด็กอายุ 3-5 ปี

ในศูนย์สุขภาพชุมชนเมืองไพร อำเภอเสลภูมิ จังหวัดร้อยเอ็ด

คำชี้แจง แบบสัมภาษณ์งานวิจัยนี้ ใช้ประกอบการสัมภาษณ์ผู้ดูแลเด็ก ประกอบด้วย 3 หัวข้อ

ส่วนที่ 1 ข้อมูลทั่วไป

เป็นข้อมูลพื้นฐานของเด็ก และครอบครัว ผู้จัดเก็บข้อมูลอาจจะใช้วิธีสังเกต หรือสอบถามท่านในบางคำถาม

ส่วนที่ 2 แบบสัมภาษณ์เกี่ยวกับปัจจัยที่มีอิทธิพลต่อพัฒนาการเด็ก มี 2 ส่วนย่อย

1) ประวัติส่วนบุคคลของเด็กเกี่ยวกับงานอนามัยแม่และเด็ก

ท่านสามารถให้ข้อมูลแก่ผู้จัดเก็บข้อมูลได้ โดยการมอบเอกสาร สมุดสีชมพู ประจำตัวเด็ก หรือ เอกสารอื่นๆ เช่น สำเนาทะเบียนบ้าน ใบเกิด ให้แก่ผู้จัดเก็บข้อมูลเพื่อตรวจสอบและจัดเก็บข้อมูลจากในสมุดได้โดยตรง และอาจจะตอบคำถามบางคำถามที่ไม่มีบันทึกในสมุด

2) ด้านครอบครัวเด็ก

- ถ้าท่านมีหลักฐานแสดงให้ผู้จัดเก็บข้อมูลเห็น ก็จะเป็นการดีมาก อย่างไรก็ตาม ถ้าท่านตอบคำถามตามความเป็นจริง ก็เพียงพอแล้ว และจะเป็นประโยชน์อย่างยิ่ง

ส่วนที่ 3 แบบประเมินพัฒนาการเด็ก 3-5 ปี

แบบประเมินนี้ ตัดมาจากแบบประเมินพัฒนาการเด็ก อนามัย ' 49 เฉพาะส่วนที่ใช้เพื่อการประเมินพัฒนาการเด็ก 3-5 ปี ในการประเมิน ผู้จัดเก็บข้อมูลจะทำการประเมินตามเกณฑ์ โดยขอให้เด็กแสดงกิจกรรมที่กำหนด

การวิจัยครั้งนี้จะได้นำไปวางแผนการส่งเสริมสุขภาพและพัฒนาการเด็ก โดยนำเสนอรายงานการวิจัยแก่หน่วยงานที่เกี่ยวข้อง ข้อมูลดังกล่าว จะไม่ก่อให้เกิดความเสียหายแก่ผู้ตอบแบบสัมภาษณ์ และจะเก็บเป็นความลับ โดยนำผลการวิเคราะห์และนำเสนอข้อมูลในภาพรวมเท่านั้น การเข้าร่วมการวิจัยครั้งนี้ เป็นไปตามความสมัครใจของท่าน หากยินดีเข้าร่วมวิจัย โปรดตอบแบบสัมภาษณ์ฉบับนี้ ให้ครบทุกข้อ และตรงความเป็นจริงมากที่สุด

ผู้วิจัย ขอขอบคุณทุกท่าน ที่ให้ความร่วมมือในการวิจัยครั้งนี้

แบบสัมภาษณ์

การวิจัย ปัจจัยด้านครอบครัวที่มีอิทธิพลต่อพัฒนาการเด็กอายุ 3-5 ปี ในศูนย์สุขภาพชุมชนเมืองไพร อำเภอเสลภูมิ จังหวัดร้อยเอ็ด

ก. ข้อมูลทั่วไป

1. เขตที่อยู่อาศัยของเด็ก

1) อยู่ในเขตการปกครองของ

( ) เทศบาลตำบลเมืองไพร ( ) องค์การบริหารส่วนตำบลบึงเกลือ

2) เด็กอาศัยอยู่ที่ หมู่ที่ ..... ตำบล ..... และขนาดของหมู่บ้าน

( ) น้อยกว่า 80 หลังคาเรือน

( ) 81-100 หลังคาเรือน

( ) 101 หลังคาเรือนขึ้นไป

2. ข้อมูลส่วนบุคคลของเด็ก

1) เพศ ( ) ชาย ( ) หญิง

2) อายุ ( ) 3 ปี ( ) 4 ปี ( ) 5 ปี

3) เด็ก เป็นบุตรลำดับที่ เท่าไรของพ่อแม่

( ) ลำดับที่ 1 ( ) ลำดับที่ 2 ( ) ลำดับที่ 3 ( ) ลำดับที่ 4 ขึ้นไป

3) ข้อมูลครอบครัวของเด็ก

1) อายุของพ่อ ..... ปี

2) ระดับการศึกษาของพ่อ สำเร็จการศึกษาระดับชั้น

( ) ประถมศึกษา หรือ ต่ำกว่า ( ) มัธยมศึกษาตอนต้น

( ) มัธยมศึกษาตอนปลาย ( ) อนุปริญญา

( ) ปริญญาตรี หรือ สูงกว่า

3) อายุของแม่ ..... ปี

4) ระดับการศึกษาของแม่ สำเร็จการศึกษาระดับชั้น

( ) ประถมศึกษา หรือ ต่ำกว่า ( ) มัธยมศึกษาตอนต้น

( ) มัธยมศึกษาตอนปลาย ( ) อนุปริญญา

( ) ปริญญาตรี หรือ สูงกว่า

5) จำนวนสมาชิกในครอบครัว ในครัวเรือนของเด็ก มีคนอาศัยอยู่ด้วยกันทั้งหมดกี่คน

( ) 3-4 คน ( ) 5-6 คน ( ) 7 คนขึ้นไป

6) หัวหน้าครอบครัว อายุ ..... ปี

7) ลักษณะของครอบครัว

( ) อยู่กันเฉพาะ พ่อ แม่ ลูก

( ) อยู่กันหลายคน พ่อ แม่ ลูก และ ปู่ ย่า ตา ยาย หรือ มีญาติคนอื่นๆอยู่ด้วย

8) ท่านคิดว่าครอบครัวของเด็ก มีรายได้และค่าใช้จ่ายในครอบครัวเป็นอย่างไร

( ) ไม่พอเพียง รายรับไม่พอดีกับรายจ่าย มีหนี้สิน

( ) พอเพียง พอใช้ ไม่มีหนี้ แต่ ไม่เหลือเก็บ

( ) พอเพียง และเหลือเก็บออมบ้าง

9) ปัจจุบันเด็กอาศัยอยู่กับใคร

( ) อยู่กับพ่อ

( ) อยู่กับแม่

( ) อยู่กับทั้งพ่อและแม่

( ) ไม่อยู่กับทั้งพ่อและแม่

10) ผู้เลี้ยงดูหลักในเวลากลางวัน

( ) พ่อ

( ) แม่

( ) พ่อ และ แม่ อยู่ด้วยกัน

( ) ปู่ ย่า ตา หรือ ยาย

( ) ญาติ หรือ ลุง ป้า น้า อา

( ) จ้างคนอื่นเลี้ยง / ฝากเลี้ยงที่บ้านคนอื่น

11) ระดับการศึกษาของผู้ดูแลเด็ก สำเร็จการศึกษาระดับชั้นใด

( ) ประถมศึกษา หรือ ต่ำกว่า

( ) มัธยมศึกษาตอนต้น

( ) มัธยมศึกษาตอนปลาย

( ) อนุปริญญา

( ) ปริญญาตรี หรือ สูงกว่า

ข. ปัจจัยที่มีอิทธิพลต่อพัฒนาการเด็ก

1) ประวัติส่วนบุคคลเกี่ยวกับอนามัยแม่และเด็ก			
ข้อ	**ข้อมูล**	**สรุปคำตอบ**	
		ใช่	**ไม่ใช่**
1	ระหว่างการตั้งครรภ์ แม่ได้เข้ารับการตรวจครรภ์ตามหมอนัดหรือไม่ ( ) ไปทุกครั้ง ที่มีนัด ( ) ไปตามนัดไม่ครบทุกครั้ง รวมแล้วเพียง 2-3 ครั้ง ( ) ไม่ฝากครรภ์เลย		
2	หมอบอกว่า เด็กคลอดปกติ ใช่หรือไม่ ( ) คลอดปกติ ( ) ผ่าตัดคลอด หรือ หมอช่วยคลอดด้วยวิธีอื่นๆ		
3	เด็กไม่ได้คลอดก่อนกำหนดใช่หรือไม่ ( ) คลอดเมื่อครบกำหนดคลอด ( ) คลอดเร็วกว่ากำหนด 2-3 สัปดาห์ ( ) คลอดเร็วกว่ากำหนด 4 สัปดาห์ หรือเร็วกว่า		
4	เด็กมีน้ำหนักแรกคลอด ไม่น้อยกว่า 2,500 กรัม ใช่หรือไม่ ( ) น้อยกว่า 2,500 กรัม ( ) 2,501-3,000 กรัม ( ) 3,001-4,000 กรัม ( ) 4,001 กรัม ขึ้นไป		
5	แม่ของเด็กเลี้ยงเด็กด้วยนมแม่อย่างเดียวอย่างน้อย 6 เดือน ใช่หรือไม่ ( ) 6 เดือน หรือ มากกว่า ( ) 3-5 เดือน ( ) 2 เดือน หรือ น้อยกว่านั้น		
6	ท่านไม่เคยได้รับแจ้งจากหมอว่าเด็กป่วยเป็นโรคเหล่านี้ ใช่หรือไม่ ( ) ธาลัสซีเมีย ( ) โรคโลหิตจาง ( ) โรคลมชัก ( ) โรคขาดสารอาหาร ( ) ไม่เคย		

2) ด้านครอบครัวเด็ก			
ข้อ	**ข้อมูล**	**สรุปคำตอบ**	
		ใช่	**ไม่ใช่**
1.	ท่านจัดหาอาหารเสริมสุขภาพสำหรับเด็ก 3-5 ปี แก่เด็กอย่างเหมาะสมเพียงพอ ใช่หรือไม่ ( ) เพียงพอ 3 มื้อ ต่อวัน ( ) จัดให้ 1-2 มื้อ ( ) ให้เด็กรับประทานอาหารพร้อมกับผู้ใหญ่ในครอบครัวเลย		
2.	ในครัวเรือนของท่าน มีการใช้เกลือเสริมไอโอดีน ใช่หรือไม่ ( ) ใช้ปรุงอาหารประจำ ทุกมื้อ ( ) ใช้ แต่นานๆครั้ง ( ) ไม่ใช้เลย		
3.	ท่านมีหนังสือสำหรับเด็ก อายุ 3-5 ปี ไว้ให้เด็กหัดอ่านใช่หรือไม่ ( ) มี 3 เล่ม หรือ มากกว่า ( ) มี 1-2 เล่ม ( ) ไม่มีเลย		
4.	ท่านมีของเล่น สำหรับเด็ก อายุ 3-5 ปี ไว้ให้เด็กเล่น ใช่หรือไม่ ( ) มี 3 ชิ้น หรือ มากกว่า ( ) มี 1-2 ชิ้น ( ) ไม่มีเลย		
5.	ท่านทำกิจกรรมต่อไปนี้กับเด็กอยู่เสมอ อยู่บ่อยๆ ใช่หรือไม่ ( ) อ่านหนังสือ หรือ ดูหนังสือภาพ วาดรูป นับเลข ( ) เล่านิทานให้เด็กฟัง ( ) ร่วมร้องเพลงกับเด็ก ( ) เล่นสนุกกับเด็ก พาเดินเล่นรอบๆบริเวณ ไปสนามเด็กเล่น ( ) ไม่เคยทำทุกข้อข้างต้น		
6.	ด้านสุขาภิบาล เด็กดื่มน้ำจากแหล่งน้ำดื่มที่สะอาด ใช่หรือไม่ ( ) ดื่มจากน้ำบรรจุขวดจำหน่าย ( ) ดื่มน้ำฝน ( ) ดื่มน้ำประปา ระบบท่อ ( ) ดื่มน้ำบาดาล ( ) ดื่มน้ำจากบ่อน้ำ		

2) ด้านครอบครัวเด็ก (ต่อ)			
ข้อ	**ข้อมูล**	**สรุปคำตอบ**	
		ใช่	**ไม่ใช่**
7	ในความคิดของท่าน ท่านคิดว่าท่านเลี้ยงดูเด็กอย่างเหมาะสมแล้ว ใช่หรือไม่ ( ) ท่านไม่มีเวลานัก แทบไม่ได้สนใจว่าเด็กทำอะไรในแต่ละวัน ( ) ท่านร่วมมือกับเด็ก ในการกำหนดว่า อะไรทำได้ อะไรไม่ให้ทำ ( ) ท่านเป็นผู้กำหนดเอง ว่าอะไรที่เด็กควรทำ หรือ ไม่ควรทำ ( ) ท่านเคารพความคิดเด็ก แล้วแต่เด็กอยากทำอะไร จะจัดหาให้		
8	ในรอบสัปดาห์ที่ผ่านมาท่านไม่เคยปล่อยเด็กไว้ตามลำพัง หรือให้อยู่กับเด็กอายุต่ำกว่า 10 ปี โดยลำพัง ใช่หรือไม่ ( ) ไม่เคยปล่อยไว้ตามลำพัง ( ) เคย 1-2 ครั้ง ( ) เคย 3 ครั้ง ขึ้นไป		
9.	ครอบครัวของเด็ก มีบุคคลต่อไปนี้อาศัยภายในครอบครัว ใช่หรือไม่ ( ) มีผู้ป่วยหนัก หรือ ผู้พิการ ต้องดูแลเป็นพิเศษ ( ) ผู้ใหญ่ที่ดื่มสุรา และเมาสุราเป็นประจำ ( ) ผู้ใหญ่ที่ไม่มีงานทำเป็นเรื่องเป็นราว ( ) ภายในครอบครัวมีปัญหาทำให้ต้องทะเลาะกัน อยู่บ่อยๆ ( ) ไม่มีทุกอย่างที่ว่ามา		

ส่วนที่ 2 การประเมินพัฒนาการเด็ก 3-5 ปี

แบบประเมินพัฒนาการเด็ก 3-5 ปี ตัดจากแบบประเมินพัฒนาการเด็กปฐมวัย อนามัย '49

สำหรับการวิจัย ปัจจัยด้านครอบครัวที่มีอิทธิพลต่อพัฒนาการเด็กอายุ 3-5 ปี

ในศูนย์สุขภาพชุมชนเมืองไพร อำเภอเสลภูมิ จังหวัดร้อยเอ็ด

ก. แบบประเมินพัฒนาการเด็ก 3 ปี

อายุ	พัฒนาการตามวัย	วิธีการทดสอบ	ผลการประเมิน	
			ผ่าน	ไม่ผ่าน
37-48 เดือน	O บอกสีได้อย่างน้อย 1 สี	ถามเด็ก เกี่ยวกับสี ของสิ่งที่เห็น ถ้าตอบได้อย่างน้อย 1 สีให้ผ่าน		
	O เขียนวงกลมตามแบบได้	วางรูปวงกลมให้เด็กดู แล้วให้วาดตามแบบ โดยไม่ให้บอกว่าเป็นรูปวงกลม ถ้าทำได้ ให้ผ่าน		
	O พูดเล่าเรื่องให้คนอื่นเข้าใจเกือบทั้งหมด	ชักชวนให้เด็กดูรูปภาพหนังสือนิทาน แล้วชักชวนให้เล่าเรื่องเกี่ยวกับภาพให้ฟัง ถ้าเด็กสามารถเล่าเป็นเรื่องเป็นราวได้ให้ผ่าน		
สรุป ผ่านทั้ง 3 ตัวชี้วัด ให้ผ่าน ทำไม่ได้ข้อใดข้อหนึ่ง ไม่ให้ผ่าน				

ข. แบบประเมินพัฒนาการเด็ก 4 ปี

อายุ	พัฒนาการตามวัย	วิธีการทดสอบ	ผลการประเมิน	
			ผ่าน	ไม่ผ่าน
49-60 เดือน	O เข้าใจและอธิบายเหตุผลง่ายๆได้	ถามเด็กว่าถ้าหิวจะทำอย่างไร ถ้าง่วงจะทำอย่างไร ถ้าเด็กตอบได้ว่ากินข้าว น้ำ ขนม และ ไปนอน ไปพัก ให้ผ่าน		
	Oนับและรู้จำนวน 1-5	บอกให้เด็กหยิบสิ่งของมา 1-5 ชิ้น ถ้าหยิบมาครบตามจำนวน ที่บอกได้ ให้ผ่าน		
	O บอกสีได้อย่างน้อย 4 สี	ถามเด็ก เกี่ยวกับสี ของสิ่งที่เห็น ถ้าตอบได้อย่างน้อย 4 สีให้ผ่าน		
	Oวาดรูปคนอย่างง่ายๆได้	วางกระดาษและดินสอให้เด็ก บอกให้วาดคนบนกระดาษ ถ้าวาดได้ ให้ผ่าน		
สรุป ผ่านทั้ง 4 ตัวชี้วัด ให้ผ่าน ทำไม่ได้ข้อใดข้อหนึ่ง ไม่ให้ผ่าน				

ค. แบบประเมินพัฒนาการเด็ก 5 ปี

อายุ	พัฒนาการตามวัย	วิธีการทดสอบ	ผลการประเมิน	
			ผ่าน	ไม่ผ่าน
61 – 72 เดือน	O รู้จักซ้าย ขวา ข้างบน ข้าง ใต้ ข้างหน้า ข้างหลัง	ผู้ทดสอบบอกเด็กให้วางสิ่งของไว้ตามคำสั่งคือ ซ้าย ขวา ข้างบน ข้างใต้ ข้างหน้า ข้างหลัง ถ้าทำได้ให้ผ่าน		
	Oรู้จำนวน 1-10 ชิ้น	บอกให้เด็กหยิบสิ่งของมา 10 ชิ้น ถ้าหยิบมาครบตามจำนวน 10 ชิ้น ให้ผ่าน		
	Oวาดรูปสามเหลี่ยมได้	วางกระดาษและดินสอให้เด็ก บอกให้วาดรูป 3 เหลี่ยม ถ้าวาดได้ ให้ผ่าน		
สรุป ผ่านทั้ง 3 ตัวชี้วัด ให้ผ่าน ทำไม่ได้ข้อใดข้อหนึ่ง ไม่ให้ผ่าน				

APPENDIX B

English-language Questionnaire

Title: Factors Affecting Development of Children Aged 3-5 years in Muangphrai Primary Care Unit Selaphum District Roi-et Province Thailand.

Explanation: Using this data collecting form to ask mothers or fathers or child caregivers, and to assess the child development, the data collecting form composes of 2 parts;

Part I Questionnaire

A. General data

1) Residence location

2) Child's individual data

3) Family data

4) Access to health care and education

B. Factors affecting child development

1) Maternal and child health profile of the child

2) Child's family and child rearing patterns

Part II The assessment of development of children aged 3-5 years

The assessment of development of children aged 3-5 years is cut from the child assessment of Anamai'49. The researcher collected only the parts of the assessment for the children aged 3, 4 and 5 years. To assess child development, the data collector would be familiarity to conduct the child to do activities and show their abilities as the assessment has specified.

Information from the respondents will not cause damage to the answer. The researcher would keep them to be confidential. The researcher would analyze the data and the present information in an overview. Participating in this research is the voluntary participation.

Part I: Questionnaire

Factors Affecting Development of Children Aged 3-5 Years

In Muangphrai Primary Care Unit Selaphum District Roi-et Province Thailand

A. General data

1. Residence location

1) Residence located in

( ) Municipal of Muangphrai Sub-district

( ) Local Administration of Bungklua Sub-district.

2) The child lives in the village named…… Sub-district……

And the village size is;

( ) 100 households or less than ( ) 101 households or more than

2. Child's individual data

1) Sex ( ) Male ( ) Female

2) Age ( ) 3 years ( ) 4 years ( ) 5 years

3) Child order number of the parents

( ) The first ( ) The second

( ) The third ( ) The fourth and later

3. Family data

1) Age of the father …… years

2) The father has succeeded on the education level of;

( ) Primary school or lower ( ) Lower secondary school

( ) Upper secondary school ( ) Vocational certificate

( ) Graduate or higher

3) Age of the mother …… years

4) The child's mother has succeeded on the education level of;

( ) Primary school or less than ( ) Lower secondary school

( ) Upper secondary school ( ) Vocational certificate

( ) Graduate and higher

5) How many members live in this family?

( ) 3-4 persons ( ) 5-6 persons ( ) 7 persons and more than

6) What is your family characteristic?

( ) Only father, mother and their children live in the family

( ) Live with the grand parents, or the others e.g. uncle, aunt, or the relatives.

7) How you think about your family income?

( ) Not balanced and some dept

( ) Balanced, no dept and no deposit

( ) Balanced and some deposit

8) At the present time, Child lives with;

( ) Only father

( ) Only mother

( ) Both with father and mother

( ) Neither father nor mother

9) Who is the mainly child caregiver?

( ) Father

( ) Mother

( ) Both father and mother

( ) Grand parents

( ) Relative e.g. uncle, aunt,

( ) Pay other caregiver or bring the child to the other family to rear.

10) The education level of child's caregiver;

( ) Primary school or less than ( ) Lower secondary school

( ) Upper secondary school ( ) Vocational certificate

( ) Graduate and higher

4. Access to health care services and child development services

1) You like to take your child to receive any health care services such as, vaccinations, well baby care, or when the child was sick, from the health care services

( ) The hospital ( ) The health center in the community

( ) The private clinic

2) At the present, you take your child to receive child development services of

( ) The child development center in the community

( ) The kindergarten ( ) None

B: Factors affecting child development

1) Maternal and child health profile of the child			
No	Subject	Conclude	
		Yes	No
1	During the pregnancy, Did the child's mother always go to ANC clinic every times of date? a. ( ) Every times by date and more than 4 times b. ( ) Sometime, 2-3 times c. ( ) Never went to ANC clinic.	If a.	
2	What was the child delivery process? a. ( ) It was a normal delivery. b. ( ) It was a cesarean or other section.	If a.	
3	How long was the term of pregnancy of the child's mother? Is it full term pregnancy? a. ( ) Yes, It was a full term pregnancy. b. ( ) No, It was a premature. It was early for 2-3 weeks. c. ( ) No, It was early 4 weeks or more than.	If a.	
4	How many was the newborn's weight? a. ( ) Less than 2,500 gram. b. ( ) 2,501-3,000 gram. c. ( ) 3,001-4,000 gram. d. ( ) 4,001 gram or more than.	If b,c,d	
5	How long was the child received the breastfeeding by the mother? a.( ) By the first 6 months of age or longer than b.( ) By the first 3-5 months of age c.( ) By the first 2 months of age or less than	If a.	
6	Have you ever told by the doctors that your child got each of these disease? a.( ) Thalassemia b.( ) Anemia c.( ) Epilepsy d.( ) Mineral deficiency e. ( ) Never	If e.	

B: Factors affecting child development (con.)

2) Child's family and child rearing patterns			
No	Subject	Conclude	
		Yes	No
1.	How often do you serve your child the appropriate supplementary foods for children age 3-5 years old? a. ( ) Always 3 times daily b. ( ) 1-2 times daily. c. ( ) The child always has got meals like all adults the in my family.		If c.
2.	Does your family use iodized salt to cook? a. ( ) Always, every meals we have cooked. b. ( ) Sometime, not often. c. ( ) Never.	If a.	
3.	Have you give the appropriate books for children aged 3-5 years for your child to learn? a. ( ) Have 3 appropriate books or More than. b. ( ) Have 1-2 appropriate books c. ( ) Never give any appropriate books.	If a.	
4.	Have you give the appropriate toys for children aged 3-5 years for your child to play? a. ( ) Have 3 appropriate toys or more b. ( ) Have1-2 appropriate toys c. ( ) Never give any appropriate toys.	If a.	
5.	Have you often do these appropriate activities with your child? a. ( ) Often telling tales to the child. b. ( ) Often singing with the child. c. ( ) Playing with the child, walking, sporting. d. ( ) Never do any activity.		If d

B: Factors affecting child development (con.)

2) Child's family and child rearing patterns (con.)			
No	Subject	Conclude	
		Yes	No
6.	Have you often give the appropriate opportunities for your child to do the things like below; a. ( ) Play with the other children b. ( ) Going up and down the stair, or climbing c. ( ) Choose the clothes himself d. ( ) You don't like your child to do that.	**ii**	If d.
7.	What are the sources of the family's drinking water that you serve your child? a. ( ) Drinking water bottle contained. b. ( ) Raining water c. ( ) Pipe system of water supply d. ( ) Ground water		If c., d.
8.	Have you teach your child the self-care and hygiene learning about; a. ( ) Take shower by himself b. ( ) Hand wash at the meal time or toilet time c. ( ) How to use toilet himself d. ( ) Never teach anything above		If d.
9.	Do you think you are good caregiver for your child, you always gave the best things you can do for your child? a. ( ) I have no times. I often forget I have a child. b.( ) I have cooperate with the child to do every things c.( ) I always direct what the child could do. d.( ) I always serve the child every thing he wants.	If b.	

B: Factors affecting child development (con.)

2) Child's family and child rearing patterns (con.)			
No	Subject	Conclude	
		Yes (1)	No(2)
10	Last week ago, have you ever let your child living alone or living with the other children aged less than 10 years? a. ( ) Never. b. ( ) 1-2 times c. ( ) 3 times or more than	If a.	
11.	Are there members with any problems in your family like below? a. ( ) There is a severe chronic patient, disabled, whom usually need to take care. b. ( ) An adult who has drunk regularly. c. ( ) An adult who has unemployed seriously. d. ( ) Your family often gets into the troubles, and conflicts. e. ( ) No case at all.	If e.	

Part II: The assessment of development of children aged 3-5 years.

Cut especially for children aged 3-5 years from Anamai'49

A: The assessment of development of children aged 3 years.

Age	Development	Direction to assessment	Result	
			Normal	Delayed
3 years (37-48 months)	( ) The child can answer at least 1 of the "colors"	Ask the child what is the color of the crayons, or the sharpeners. If the child can answer at least 1 color to be right, can get the pass of this test.		
	( ) The child can write a circle by a draft.	Place a draft for the child to draw on. Never say to the child that it is a circle, if the child can do, taken the pass of the test.		
	( ) The child talks about a story and tells the others to understand almost of the story.	To persuade the child to see the photos or the pictures in the tale books, then, to talk about that story. If the child can tell almost of the story, gets the pass the test.		
Summary				

B: The assessment of development of children aged 4 years

Age	Development	Direction to assessment	Result	
			Normal	Delay
4 years (49-60 months)	( ) The children can understand and explain about something by simple reason.	Ask that if the child feel hungry, what he will do, When the child feel sleepy, what he will do. If they can answer that they should eat, drink, or go to sleep, go to rest, He or she gets the pass of this test.		
	( ) The child can recognize and count the number of 1-5.	Tell the child to pick up the items 1-5 pieces. If he can pick up items and can tell the numbers of items, The child gets the pass of this test.		
	( ) The child can answer at least 4 colors of all colors	Ask the child what is the color of the things. If he can answer at least 4 colors to be right, he gets the pass of this test.		
	( ) The child can draw a simple structure of human.	Place paper and pencils. Tell the child to draw a simple structure of human. If he can do this, he gets the pass this test.		
Summary				

C: The assessment of development of children aged 5 years

Age	Development	Direction to assessment	Result	
			Normal	Delay
5 years (61 – 72 Months)	( ) The child can recognize and tell what is left or right, above and below, forward and backward.	Tell the child to put things at right or left, under or on, in front of or behind. If he can do, he gets the pass of this test.		
	( ) The child can recognize and count the number of 1-10.	Tell your child to pick 10 pieces of items. If he can pick and can tell how many of them, he gets the pass of this test.		
	( ) The child can draw the structure of triangle.	Place a paper and pencil to the child, Tell the child to draw a structure of triangle. If he can do, he passes the test.		
Summary				

APPENDIX C

Time Schedule

Research/Project Activities	Time(2009-2010)						
	Oct	Nov	Dec	Jan	Feb	Mar	Apr
1) Literature review	→	→	→				
2) Tool development for data collecting		→	→	→			
3) Field preparation and data collecting			→	→	→		
4) Data analysis and interpretation					→	→	
5) Report writing						→	→
Total							

APPENDIX D

Budget

This research was taken the supporting budget from The Muangphrai Primary Care Unit to expense for 6 steps of field preparation and data collection.

Table 2: Budget

Items	Budget (Baht)
1) Data collecting training course	3,240
- 2 days /9 public health officers	
- 180 bath / day / person	
2) Questionnaire advising / Test used	2,400
3) Questionnaire forms / the assessment of Anamai'49	1,200
- 240 pieces.	
- 5 bath / piece	
4) Field data collecting	9,450
- 210 participates	
- 45 bath/ participate	
5) Data analysis	210
- Analyze by program SPSS	
- 1 bath x 210 cases	
6) Report presentation and publication	2,500
Total budget	19,000 bath

VITAE

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