FACTORS ASSOCIATED WITH MENTAL HEALTH PROBLEMS OF MOTHERS OF DELAYED DEVELOPMENT CHILDREN IN HOSPITALS IN THE SOUTHERN REGION

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ABSTRACT

Mothers of children with delayed development are at risk for higher stress than mothers of children with normal development and the general population. Recent advances in early diagnosis have resulted in younger children being diagnosed with delayed development but factors associated with maternal stress are not well understood. The case–control study aimed to determine the factors associated with mental health problems of mothers of children with delayed development in hospitals in the southern region of Thailand. Two hundred and ten subjects of mothers of children with delayed development were recruited from eight development stimulation clinics in hospitals of three provinces in the southern region: Surat Thani, Nakhon Si Thammarat, and Songkhla. Cases and controls were identified by using the modified Parental Stress Scale (PSS); 70 mothers had mental health problems, and 140 mothers in the control group did not. Data collection was performed from October 2013 to March 2014 using self–administered questionnaires and record forms. The chi–square test and unconditional logistic regression analyses were used to test the association between independent variables and maternal mental health.

The study results demonstrated that factors significantly associated with maternal mental health problems were lower levels of parenting competence (OR = 4.2; 95% CI = 1.3–14.1) and lower levels of social support (OR = 3.4; 95% CI = 1.5–7.9).

Lower levels of parenting competence and lower levels of social support were the most important factors associated with maternal mental health problems. Screening the mothers' mental health is a necessary addition to present interventions aimed at reducing or preventing these negative outcomes. The promotion of parenting competence, and emotional, tangible, and informational support have been important to the focus of parent training programs. These help these mothers to manage their mental health problems more effectively and increase their parenting behavior and skills.

KEY WORDS: DELAYED DEVELOPMENT CHILDREN / MENTAL HEALTH PROBLEMS / SOUTHERN REGION

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ปัจจัยที่มีความสัมพันธ์กับปัญหาสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้า ของโรงพยาบาลในภาคใต้

FACTORS ASSOCIATED WITH MENTAL HEALTH PROBLEMS OF MOTHERS OF DELAYED DEVELOPMENT CHILDREN IN HOSPITALS IN THE SOUTHERN REGION

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บทคัดย่อ

มีผลการศึกษาจำนวนมากที่พบว่ามารดาที่มีบุตรพัฒนาการล่าช้ามีปัญหาสุขภาพจิตมากกว่ามารดาที่มีบุตรพัฒนาการปกติและประชากรทั่วไป แต่ปัจจัยที่มีความสัมพันธ์กับการเกิดปัญหาสุขภาพจิตของมารดาเด็กเหล่านี้ยังไม่ทราบแน่ชัด การศึกษาเชิงวิเคราะห์ย้อนหลังแบบไม่จับคู่กัน (Unmatched Case–control study) มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่มีความสัมพันธ์กับปัญหาสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้า ของโรงพยาบาลในภาคใต้ กลุ่มตัวอย่างที่ศึกษา คือ มารดาเด็กอายุแรกเกิดถึง 5 ปีที่มีพัฒนาการล่าช้า ที่พาเด็กมารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้ ประกอบด้วย 3 จังหวัด คือ สุราษฎร์ธานี นครศรีธรรมราชและสงขลา ระหว่างเดือนตุลาคม พ.ศ. 2556 ถึง เดือนมีนาคม พ.ศ. 2557 จำนวน 210 คน และได้รับการคัดกรองภาวะสุขภาพจิตโดยประยุกต์ใช้เครื่องมือ The Parental Stress Scale (PSS) ผู้ที่มีคะแนนรวมระหว่าง 11–31 คะแนน จำแนกเป็นกลุ่มศึกษา ส่วนผู้ที่มีคะแนนรวมระหว่าง 32–44 คะแนน จำแนกเป็นกลุ่มควบคุม เก็บรวบรวมข้อมูลโดยใช้แบบสอบถามและแบบคัดลอกข้อมูลจากเวชระเบียนผู้ป่วยนอก และวิเคราะห์ข้อมูลโดยใช้สถิติ Chi–square test และ Unconditional logistic regression

ผลการศึกษา พบปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาอย่างมีนัยสำคัญทางสถิติ คือ ความสามารถของมารดาในการดูแลเด็ก (Adjusted OR = 4.2; 95% CI = 1.3–14.1) และการสนับสนุนทางสังคม (Adjusted OR = 3.4; 95% CI = 1.5–7.9)

จากผลการศึกษาครั้งนี้เสนอแนะว่าเมื่อเด็กได้รับการวินิจฉัยว่ามีพัฒนาการล่าช้า บุคลากรทางการแพทย์ควรประเมินภาวะสุขภาพจิตของมารดาทุกคน เพื่อเป็นการลด หรือป้องกันผลกระทบเชิงลบที่อาจจะเกิดขึ้น และที่สำคัญคือ การส่งเสริมศักยภาพของมารดาเพื่อให้มีความมั่นใจในการเลี้ยงดูเด็ก และการสนับสนุนทางสังคมด้านต่างๆ นั้น นอกจากจะช่วยให้มารดาเหล่านี้จัดการกับความเครียดที่เกิดจากการเลี้ยงดูเด็กได้อย่างมีประสิทธิภาพแล้ว ยังเป็นการเสริมสร้างพฤติกรรม และทักษะให้แก่มารดาอีกด้วย

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WHO	World Health Organization
DDST	Denver Development Screening Test
PSS	Parental Stress Scale
PSOC	Parenting Sense of Competence
FIQ	Family Impact Questionnaire
MOS–SSS	Medical Outcomes Study Social Support Survey
UNICEF	United Nations Children Fund
DIR/Floor–time Model	Development Individual Difference Relationship Based
ABA	Applied Behavior Analysis
SIT	Sensory Integration Therapy
PSI	Parental Stress Index
ADQ	Adaptive Developmental Quotient

CHAPTER I
INTRODUCTION

1.1 Background and Rationale

Child care promoting health and development is required for families and society to ensure health, intelligence, self–esteem, life skills, emotional maturity and social responsibility. However, inappropriate support, as well as congenital disabilities can delay development [1].

Children with delayed development have developmental patterns that deviate from the norm and are slower than other children at same age. Delay development is not only one area, but has been observed in several areas including global developmental delay and each area may affect the others. The types of delayed development can be classified in four major areas: 1) gross motor and balance skills, 2) fine motor adaptive and solving problem skills, 3) language and communication skills, and 4) social and self–help skills [2, 3]. The World Health Organization has estimated that 15 to 20% of children throughout the world have delayed development [2]. A study in developing countries showed that an estimated 200 million children aged 0 to 5 fail to reach their potential in cognitive and social emotional development [4]. In Thailand, child development levels have been studied and surveyed many times. The First Health Situation Survey from 1991 to 1992, using the modified Denver Developmental Screening Test (DDST), found that delayed development was greater in the areas of language and communication and fine motor adaptive skills than others [5]. In 2010, the Department of Health, Ministry of Public Health conducted a the Denver II survey throughout the country of 1,680 of children aged 1 to 5 years, reporting 29.7% of children had global delayed development. When separated by development areas, the proportion of delayed development language, fine motor adaptive, social and self–help, and gross motor skills was 18.9%, 7.3%, 6.4%, and 5.3% respectively. The entirety of studies showed similar finding that many Thai children had delayed development in language and fine motor adaptive skills [6]. The

disabilities not only affect to self–adjustability, self–help skills in daily living activities or multi–dimensional society of a child, but also affect their caregivers [7, 8]. Many studies have shown that mothers were the main caregiver (approximately 65% to 98%) of children with delayed development, chronically illness or other disabilities in their families [7, 9–11]. That care included feeding, maintaining body cleanliness, supporting, and preventing of any accidents. The children could not be left alone because their self–care abilities were limited [12, 13].

In addition to the limitations as mentioned, the children with delayed development also display of multi–formal behaviors. They depend on disorder characteristics or co–morbidity, which contributes to difficulty, complexity in child care managing [14], and long–term intensive care that relies on patience and responsibility [15, 16]. It affects maternal mental state and creates feelings of low self–esteem in living, exhaustion, stress or strain and causes mental health problems [16–18]. Many studies have reported that mothers of children with delayed development had more mental health problems than mothers of children with normal development and the general population [10, 13, 16, 17, 19, 20–22].

A review literature, found three types of factors associated with mental health problems of mothers of delayed development children. The mothers' personal–social factors i.e., mother's age [23, 24] mothers below the age of 30 had greater risk of maternal mental health problems that they have relatively little experience in their roles as parents. For educational level, mother with less than high school or less education [25, 26], poorer and along with poverty [23, 27] more likely to have maternal stress, they may have had fewer strategies to cope with raising their child. In addition, parenting competence has been shown significant associate with maternal mental health problems. It can be encourage maternal role development and promote maternal confidence [28, 29]. Conversely, if mothers are unable to respond and to appropriately give care, they will develop negative feelings.

The child's personal factors considered to be important i.e., child's age; some studies have suggested that mothers of older children with delayed development report higher levels of mental health problems [30, 31]. Conversely, other studies have demonstrated that mothers of younger children reported higher levels of mental health problems [7, 32, 33]. Child's adaptive developmental quotient, the literature supports

the notion that the greater severity of disability, the more mental health problems reported by mothers [34–36]. Furthermore, group differences in maternal mental health problems have been also demonstrated across various type of syndrome group, with mothers of children with autism consistently showing higher levels of mental health problems because this child more often display behavior problems and unclear etiology [22, 31, 37].

In addition, environmental factors such as family impact, mothers having a child with delayed development reported more negative impact on their families and higher child related stress and others reported on the probability of divorce [38, 39]. Whilst, some mothers reported converse result, having a child with developmental delay can enhance sense of purpose, improve family relationships [40, 41] and fulfillment and described the bond they had as unlike any other. Moreover, the levels of stress are affected by levels of social support [25, 42, 43]. The availability and type of social support has been considered to be important to these mothers that could alleviate mental health problems.

However, most of those studies were conducted in western countries, so the results may differ from studies in Asian countries because of the economic and socio–cultural factors including health care system and others different factors [16, 25, 42, 44]. In Thailand, there was very few studies and conducted specific in a hospital or a group of syndrome [45]. This information may be inadequate for describing the relationships between various factors and maternal mental health problems. This study, the researcher added the residence area factor because the hospitals providing services in child development stimulation clinics are hospital centers and hospitals depend on the medical schools located in urban areas. This affects services accessibility and may be associated with maternal mental health problems of the delayed development children who received services [26]. As a result, the researcher was interested in studying factors associated with mental health problems of mothers of delayed development children in hospitals in the southern region. The research finding will be used to set baseline data and support information to establish plans to supervise and promote mental health of those mothers.

1.2 Research Questions

Which factors (mothers' personal–social factors, child's personal factors and environmental factors) were associated with mental health problems of mothers of delayed development children in hospitals in the southern region?

1.3 Research Objective

1.3.1 To describe the demographic characteristics of mothers and delayed development children in hospitals in the southern region.

1.3.2 To identify the factors associated with mental health problems of mothers of delayed development children in hospitals in the southern region.

1.4 Research Hypothesis

1.4.1 Mothers' personal–social factors (age, religion, marital status, occupation, personal disease, educational level, duration of care, number of children, average household income, family type, number of delayed development children and parenting competence) would associate with maternal mental health problems.

1.4.2 Child's personal factors (sex, age, child birth order, syndrome group, type of delayed development, child's adaptive developmental quotient and results of the sensation test) would associate with maternal mental health problems.

1.4.3 Environmental factors (residence area, family relationship, family member involvement, family impact and social support) would associate with maternal mental health problems.

1.5 Scope of the Study

The study was specifically conducted among mothers of delayed development children that received services at development stimulation clinics in hospitals of three provinces in the southern region, i.e., Surat Thani, Nakhon Si Thammarat and Songkhla, from October 2013 to March 2014. In all, 8 hospitals provided services at development stimulation clinic, identified by province, which were:

Surat Thani	Surat Thani Hospital
	Suansaranrom Psychiatric Hospital
Nakhon Si Thammarat	Chawang Crown Prince Hospital
	Maharaj Nakhon Si Thammarat Hospital
Songkhla	Songkhla Hospital
	Hatyai Hospital
	Songkhla Rajanagarindra Psychiatric Hospital
	Songkhlanagarindra Hospital

1.6 Definitions of Terms

Mothers of delayed development children was defined as the mothers of children aged 0–5 years with development delay in one area only, several or global development delay. They are also responsible for providing intensive care and bringing their child to receive services at development stimulation clinics in hospitals in the southern region.

Mental health was defined as a state of well–being among mothers of delayed development children including managing any problems for living, developing oneself for good quality of life, under the alteration of society and environment and including moral principles of those persons. The researcher modified the Parental Stress Scale (PSS) developed by Berry JO and Jones WH [46] for maternal mental health status assessment and the result was interpreted as

1) Have had mental health problems

2) Have not had mental health problems

Duration of care was defined as the number of months that mothers of delayed development children took care, assisted and brought their child to receive services at development stimulation clinics.

Family type was defined as the structural characteristics of diverse family members and classified in three types, as described below.

1) Nuclear or elementary family is defined as a family consisting of parents and child or relatives living together such as the parents' sisters or brothers who are single.

2) Extended or joint family is defined as a family consisting of parents and child and grandmothers, grandfathers, or relatives living together.

3) Single parent is defined as a family consisting of either a single father or mother responsible for providing child care.

Age of children with delayed development was defined as the number of months of delayed development children which are determined by data collection. Age was divided in three stages by development milestones, as described below.

1) Infant (under 1 year)

2) Toddler (aged 1–3 years)

3) Preschool age (aged 3–5 years)

Type of delayed development was defined as a developmental pattern deviating from the norm occurring in children aged 0–5 years and divided by development milestones in four major areas, as described below.

1) Gross motor and balance skills

2) Fine motor adaptive and solving problem skills

3) Language and communication skills

4) Social and self–help skills

Child's adaptive developmental quotient was defined as an adaptive developmental quotient of delayed development children to perform the development milestone skills. The researcher modified the Denver Development Screening Test (DDST), developed by Frankenburg WK et al. [47] and was edited and translated to Thai version by Kotchabhakdi N and Lert–awasadatrakul O [48] to assess the development quotient of the children with delayed development. It identifies development milestones composed of three dimensions: 1) activities of daily living, 2) mobility and 3) communication and verbalization needs. The results were classified in three levels:

1) Normal development
2) Mild to moderate delay
3) Severe delay

Family member involvement was defined as the participation of family members in the caring process of a child with delayed development including supporting mother for child care. The researcher modified the Who Does What: Caring for Our Child Scales, developed by Cowan CP and Cowan PA [49] for family member involvement assessment and results were categorized in three levels:

1) Low level of family member involvement
2) Moderate level of family member involvement
3) High level of family member involvement

Parenting competence was defined as the mother's confidence in capability of care, management, and decision making when caring for a child with delayed development. The researcher modified the Parenting Sense of Competence by Johnston C and Mash EJ [50] developed by Gibaud–Wallston J and Wandersman LP [51] to assess the level of the mother's confidence of child care. The results were divided in three levels:

1) Low level of parenting competence
2) Moderate level of parenting competence
3) High level of parenting competence

Family impact was defined as the impact to the family from the delayed development children and care provided. This includes impacts to the caregivers, family members, family member relationship, family expenditures, and social impact on a family. The researcher modified the Family Impact Questionnaire (FIQ), developed by Donenberg G and Baker BL [52] to assess the level of family impact from child care. The results were categorized in three levels:

1) Low level of family impact
2) Moderate level of family impact
3) High level of family impact

Family relationship was defined as the relations among family members, mother of delayed development children and relatives or other persons living in their family, participating in family activities, communicating, consulting, and love appearance, including appropriateness to perform their responsibility. This included possibly good or not of that relationship. The researcher applied the Indicator and Criterion of Family Living Happily, developed by Kotchabhakdi N [53] to assess family relationships. It comprised four indicators, i.e., 1) time consuming for family activity participation, 2) communicating, consulting, and decision making in all important issues, 3) love and carefulness appearance and 4) performing their responsibility appropriately. The results were classified in three levels, as described below.

1) Poor family relationship
2) Fair family relationship
3) Good family relationship

Social support was defined based on the concepts of Schaefer C et al. [54] as interpersonal relationships between mothers of delayed development children and other persons in the social context and receiving all emotional, social, informational or tangible support comprising affection, carefulness, appreciation and praise as well as feeling of acceptance. The researcher modified the Medical Outcomes Study Social Support Survey (MOS–SSS), developed by Sherbourne CD and Stewart AL [55]

comprised of three aspects: i.e., 1) emotional support, 2) tangible support and 3) informational support. The results were interpreted in three levels:

1) Low level of social support
2) Moderate level of social support
3) High level of social support

1.7 Expected Outcomes of the Study

1.7.1 Information gained on mental health status among mothers of delayed development children from the individual mental health assessment could be the important for health staff to provide appropriate services that promote and rehabilitate those mothers to manage negative affects.

1.7.2 Proven factors affecting mental health status of mothers of delayed development children can support baseline information and coordinate of health staff and other related individuals to organize and establish plans for surveillance, prevention and solutions to perceived problems.

1.8 Conceptual Framework

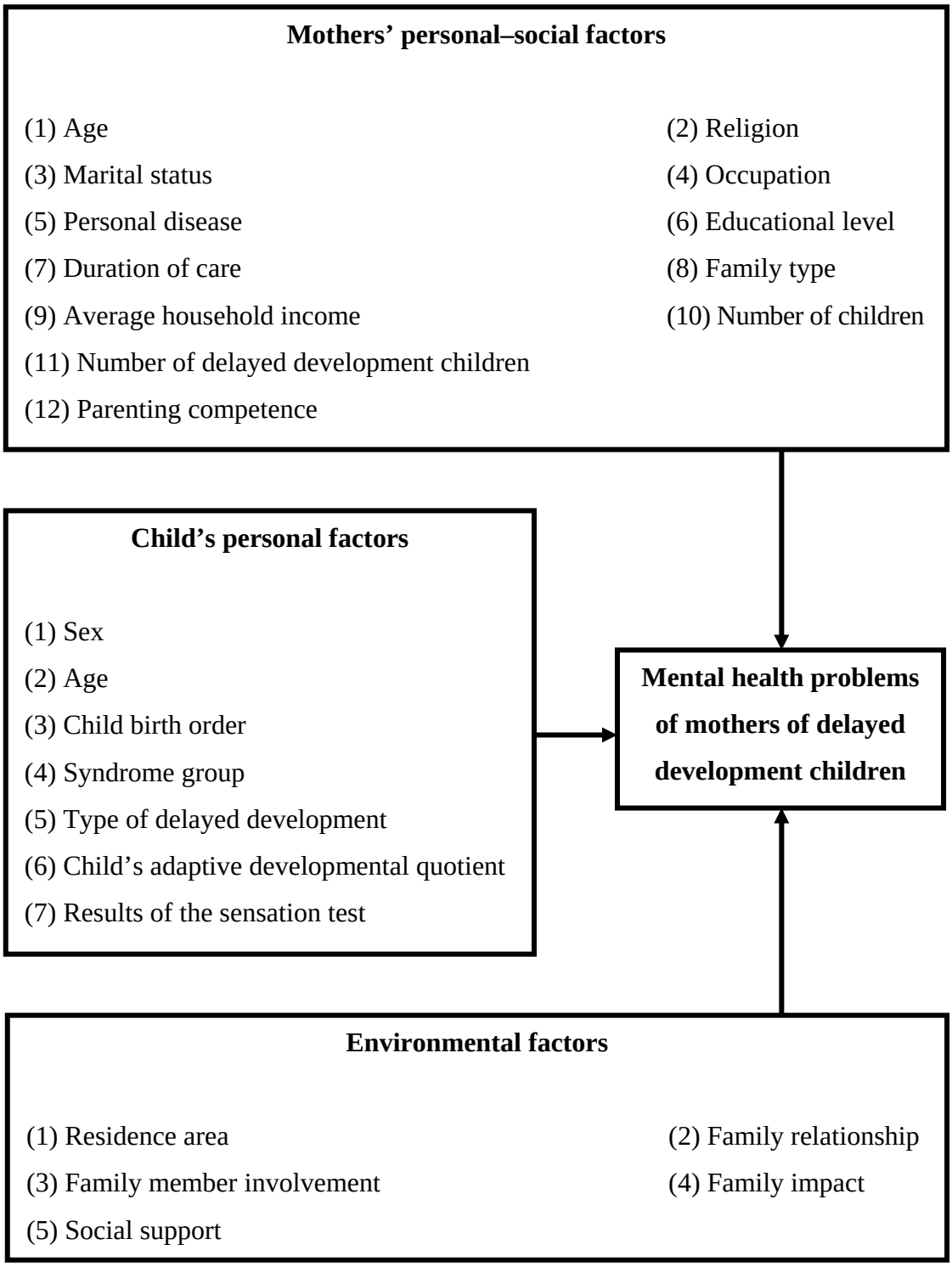

Figure 1.1 Conceptual framework of the study

CHAPTER II
LITERATURE REVIEW

The literature review of factors associated with mental health problems of mothers of delayed development children in hospitals in the southern region are presented according to five topics as following.

2.1 Principles of development

2.1.1 Normal development of children aged 0–5 years old

2.1.2 Children with delayed development

2.1.3 Children with stimulated development

2.2 Mental health

2.2.1 Definition of mental health

2.2.2 Factors influencing mental health

2.2.3 Holistic characteristics of mental health

2.2.4 Characteristics of a healthy mind

2.2.5 The effects on mental health of mothers of delayed development children

2.2.6 Mental health assessment

2.3 Concept of family relationship

2.3.1 Definition of family relationship

2.3.2 Components of family relationship

2.3.3 The consequences of unhealthy family relationship

2.4 Concept of social support

2.4.1 Definition of social support

2.4.2 Types of social support

2.4.3 Sources of social support

2.5 Related research

2.1 Principles of Development

Development is a process of change in function and maturity of organs to perform their functions effectively including skills for working, capability of congenial self–adjustment in social contexts and the environment and creative idea development. All these processes of development arise sequentially throughout life and differ from heredity and growth in variety of social and cultural contexts. The principles of development are explainable, as described below [56, 57].

1) The process of change continues from conception to maturity and throughout their life.

2) The sequence of development in an individual pattern is similar, but different in rate and duration of attaining that development.

3) Several dimensions interrelated and proceed sequentially.

4) Growth and development are the consequences of interaction between genetic and environmental factors in their lifetime. The potential of an individual is stipulated by genetics, opportunity and possibility to display that potential in the environment.

5) The development level of a child directly depends on maturity and the brain and nervous system performance. The nervous system that controls an organ must be extremely developed before it can function completely. In that, physical and social factors in childhood are important in developing the brain and nervous system, beyond genetic factors.

6) Directional patterns include the cephalo–caudal development proceeding from head to toe, the proximo–distal development proceeding from the center of the body to the periphery and the medial–lateral and gross motor/fine motor.

7) The movement development proceeds from reflex to voluntary movement.

8) Development also proceeds from the general to the specific.

9) Children development by appropriate practices that promote them to deal with objects with their capabilities and regularly observe and keep track of their development. Afterwards, a simple practical level to difficult level is gradually

added as well as intensive care and interaction, so that children are aware of acceptance, feel secure and develop the potential to progress.

2.1.1 Normal development of children aged 0 to 5 years old

The development of children aged 0 to 5 years old could be divided in five major aspects described below [2, 56, 57].

1) Physical development is defined as the ability of balancing in any posture, to move and change position including eye to hand coordination. In the first three years, the child grows and develops rapidly, and then, gradually decreases when aged 3 to 5 years old. The development of this aspect can be obviously seen from body movement such as raising the head, creeping, sitting, standing, walking, riding a tricycle, independently walking up and down stairs, and jumping. Furthermore, they still develop of eye to hand coordination in grasping and drawing pictures with more detail.

2) Cognitive development is defined as the ability for learning, understanding of the relations between things and oneself, perception, logic, analysis, synthesis and managing problem by assimilation and accommodation. Of these, it could made apparent using language and behavior to communicate. All these, depend on the maturity of the brain and opportunity to learn from surroundings. Jean Piaget [58] identified stages of cognitive development, described below.

(1) Sensoria–motor period (first two years): In this phase, the child will grow and develop rapidly as well as increase abilities in perceiving and understanding, recognizing and imitating.

(2) Pre–operational period: In the early phase (aged two to four years), the child develops perception, learning and problem management, based on an interpretation of things that they have seen and touched. When at aged four to seven years, they can inform others of their meaning, justify action and imagine about themselves. Therefore, these are related to language and communication development, fine motor adaptive and cognitive development.

3) Emotional development is defined as the ability of feeling display, differentiation and control of emotional displays suitably when facing any situations. In first year, they still feel trust & mistrust to caregivers or environment and then they develop into autonomy & shame, which could be controlled and make them more self–assured. Their emotional development also relates with their social development, sometimes, used in terms of psycho–social development.

4) Social development is defined as the ability to connect, social skills, carry out one's duty according to social roles, responsibilities and work with someone else. In the early phase, the children start connecting with intimate persons and distinguishing intimate persons from others by displaying fear of strangers. When they feel secure attachment, could develop independence, learn to self–help in daily activities. These depend on maturity of movement, intelligence and caregivers' support. In addition, gaining connections at each age and experience assists the children in performing suitably for time and place in the socio–cultural context.

5) Spiritual development is defined as the ability for perceived value of life, to control oneself to live in the right way, to know right from wrong and develop morals. The children start displaying about their needs and feelings and receiving responses spontaneously. Then they could gain control including sympathizing with others, considering rightness and appropriateness before deciding to do anything. This aspect relies on cognitive, emotional and social development for the base.

In conclusion, the development of children aged 0–5 years begins at the infant learning by touching and simple body motions, such as sucking, blowing, staring, and grasping. After that, they comprehend and gradually develop into more complex development milestones, including being able to predict and link up with the consequences of situations by means of understanding language and symbols to manage and self–adjust in events or environments. Therefore, each aspect of

development is relevant and supports the others for children to display a balance and reach their potential development.

2.1.2 Children with delayed development

Children with delayed development refer to that child whose development pattern deviates from the norm and performs slower than other child at the same age. All these can be a static or regressing state. Moreover, the delayed development in any area may affect other areas which can be divided in four major areas, described below [2, 3].

1) Gross motor and balances skills are considered as the controlling ability of the limbs muscles in movement, appearance management and balancing, such as sitting, standing, walking and jumping.

2) Fine motor adaptive and solving problem skills are considered as the ability of eye to hand coordination in grasping and solving immediate problems.

3) Language and communication skills are considered as the responding ability in sound and making a noise, such as carrying out an order, acting and speaking.

4) Social and self–help skills are considered as the ability of responding and interacting with caregivers, self–helping, playing and working with colleagues.

The assessment of child development delayed or not, needs to involve the proceedings of normal–abnormal development and assessment methods [59]. In order to acknowledge of level of development sequence when compared with other children at same age including consideration is given to the potentiality of that child and which development area should be specifically diagnosed. In addition, following up their development and referring them and family members to professional staff need to be conducted at an early phase. The DDST, modified by Frankenburg WK et al. (cited in Kotchabhakdi N [56]) is a widespread instrument for development examination and screening in children aged 0–6 years, but the DDST has the limitations in detecting language and communication impairment. Later, the Denver II, was revised and

developed adding the items of language and communication skills as well as interpretation criteria, standardization, and staff training criteria.

The Denver II is used for development screening and comprises 125 behavioral tasks grouped in four major areas: 1) gross motor skills 2) fine motor adaptive skills 3) language skills and 4) personal–social skills. These involve observing their behavior on five issues such as general health situations, responsiveness, interest in surroundings, anxiety and concentration period [60]. However, sensitivity and specificity for the developmental delay detection is a limitation of the instrument (sensitivity 80% and specificity 43 to 56%). The assessment proceedings consist of child direct assessment and inquiries to their parents, about six to seven items are used to assess each area of child age intervals and interpretation criteria are assigned as 25, 50, 75 and 90% of children with normal development at which age they can pass that test. Regarding interpreting suspected developmental delay in each area, involves children who fail to pass even one item of those areas while most children (75% to 90%) are able to and with more than 90% children development delay [6].

2.1.2.1 Factors affecting child development and cause of delayed development

Many factors cause development delay, depending on the interaction of those factors and the effect on each age in different periods, as described below [2, 61, 62].

1) Genetic related diseases: Cause congenital delayed development could be no longer noticeable after birth and possibly found among inborn anomalies. Down's syndrome is caused by genetic transmission of an extra chromosome appears to be the most common cause of developmental delay.

2) Neurological related disorders: Most children with delayed development often show signs and symptoms of neurological disorders present as convulsion and impairment of muscle tone.

3) Illness: The direct and indirect effect to child development and behavior by illness include:

- Complications at birth; the common conditions are premature birth, low birth weight and birth hypoxia

- Infections as a fetus or at birth may be caused by abnormalities such as low birth weight, microcephalus, enlarged liver and spleen, hearing impairment and cataracts etc. Moreover, severe infection postpartum such as encephalitis and meningitis are also major factors.

4) Nutrition status and nutrient: The UNICEF [63], reported that malnutrition and nutrient deficiency may affect development, behavior and intellectual growth of children including:

- The follow–up period of 2 to 3 years after birth with conditions of fetus growth restriction and birth weight less than 2,500 grams, indicates the effect on behavioral developmental of the child, especially cognitive and learning function.

- Malnutrition at childhood especially stunting from chronic malnutrition can reduce intelligence quotient and learning achievement.

- Iodine deficiency can reduce intelligent quotient, deafness from auditory nerve impairment and cerebral palsy.

- Iron deficiency can cause anemia and damage brain functions that decrease capacity of physical, cognitive and behavioral development especially reduced concentration.

5) Chemical agents: A child will receive greater effects from chemical agents than any other age when compared with the proportion of surface area, because they often breathe, eat and drink in large quantities, even if they are higher in absorption and metabolism but the excretion function is not perfect. The main chemical agents include:

- High levels of blood lead accumulated for a long time would be detrimental to intelligence quotient. The current study showed that

blood lead increased from 1 to 10 μg/dl having a greater defect to general behavior and learning by presynaptic neurotransmitter mechanic than from 10 to 20 μg/dl.

- Mercury affects the nervous system and can lead to defective, cognitive impairment, cerebral palsy and blindness especially receiving food stained while as a fetus by placental cord.

- Alcohol can restrict fetus growth, cause low birth weight, congenital heart disease and behavioral and developmental problems.

6) Parenting and environment: might cause many effects to children during infancy because they still could not help themselves. As they growth and reach higher potential development wider learning, knowing their surroundings they build their experience learning. Thus, parents or caregivers who understand development and behavior at each age including understand in the distinctions of each child could change consistent and appropriate care for each child at each age.

2.1.2.2 Care for children with delayed development

Children with delayed development need special care which differs from general, as described below [2, 64].

1) General care emphasizes basic needs based on physical, emotion and cognitive developing. Care for children with delayed development require obviously purposive care considered proper and appropriate for each child due to their limitation and distinctions.

2) Daily activities assisting includes helping to clean the body and to excrete, dress, feed, support along with prevent any accidents and harm.

3) Performing treatment plans for the child with convulsion needs drug therapy in the right dose and time. Mental retardation creates the need for increased learning ability and some case need to control harmful

behaviors such as bodily self–harm behaviors, naughtiness, attention deficit disorder or aggression.

4) Behavior modification is a moderately effective way to change or control undesired behavior and is used often such as ignoring, no reinforcement of undesired behavior and harmless, light punishment for example, holding the child's hand for one minute when they commit bodily harm as well as strict requirements for children with severe bodily harm behavior.

5) Promoting development is the important issue for holistic child care that assesses and promotes them to reach development milestones including counseling and early detection of development problems. When the child is suspected of delayed development, carefully examination should be performed to provide appropriate and correct care.

Family centered child care is one form of health service based on mutually beneficial partnerships of health staff, patient and their families. It begins by establishing plans to provide and evaluate care and merges patients and their families as a unit throughout the process. The many advantages of this strategy include, increasing worthiness and intimate relations, decreasing stress, managing and building confidence in taking care of family members. In addition, it also increases self–worth and professional independence for health staff [65]. Johnson BH [66] expressed the concept of caring based on family centered approach in eight components described below.

1) Family strength as awareness of the family regarding health care of members and suggesting places where they could receive assistance.

2) Respect as to honor, consideration of family members as well as admitting to differences of each family member and power in decision making.

3) Choice as to inform about advantages or disadvantages of information for decision making.

4) Information sharing as given straightforwardly as information to the patients or their family that ought to be shared among health staff and family.

5) Support as to assist them for decision making and managing the health of family members.

6) Flexibility as adjusted of service provided as suitable for their troubles and needs.

7) Collaboration as a team or cooperation among health staff, patients and their family, so that care is responsive to family member requirements.

8) Empowerment as to improve that family in strength based on their capabilities.

The family is the most important factor to achieve child health because all physical, mental, social and learning rely on taking care and promoting in development by family member. Of these, the members have got continually and assisting and supporting each other. If they provide inappropriate care, without cooperation for care or training the child will be at risk to various health problems that are difficult to treat. Thus, the health conditions of children such as developmental delay or chronically illness, influences much. Family member differ in trouble attributes, severity and skills to solve problems [65]. Thus, care for children with developmental delay based on family context and linked to socio–cultural, beliefs and experience can result in an effective established plan to provide care for those children.

2.1.2.3 The impacts of caring for a child with delayed development

Caring for a child with delayed development involves multi–dimensional impacts to families of caregivers, as described below [67–72].

1) Family daily living activities: Children with delayed development need intensive care from their parents or caregivers. It consumes much time to assist a child to do their daily living activities and house–work related to

caring for them. Thus, any work and child caring could not be performed simultaneously. Family daily living activities need to be modified and difficulties to be determined beforehand.

2) Family socio–economics: All disabled children need long–term medical treatment and family care. Parents or family members may be unable to work as usual, are distracted at work, and absent or take leave from their employment, resulting in decreased household income. In some families, the members need to work harder to earn enough money for child care expenditures, and they encounter physical and mental health problems.

3) Family relationship: Caring for a child with delayed development forces the family members to adjust to living together with these children. That influences interpersonal relationships between the parents, other siblings or caregivers and the development delayed children. However, some families members involved in child care experienced more intimacy in family relationships.

4) Caregiver strain: Many studies pointed out that caring for a child with delayed development or other disabilities led to more caregivers' strain than caring for a normal child. Because of the child's needs of intensive care and depending on the special knowledge of caring, the caregivers had to be trained in specific skills to care for them. If the caregivers cannot manage effective care, it might cause strained emotions, behavioral change, and negative effects to their mental state.

5) Social impact of the family: Raising and caring for a child with delayed development or other disabilities can make family members to feels embarrassed and not dare to bring those children to public places. They are afraid the children will display inappropriate behaviors and they avoid answering any questions related to this child; some families have even separated from society.

2.1.3 Child development stimulation

The purpose of stimulating child development is to promote the preschool child experiences in all learning by sensory nerves, movement training, problem solving, social skills and self–control to provide general care and prevent behavioral and developmental problems of a child at risk [73, 74]. Furthermore, assistance and/or remedy for children with developmental problems can reduce the severity of disability that depends on developing skills training programs and environment modification that favor learning [75]. The consecutive surveillance and early development intervention depends on collaboration with professional staff or multidisciplinary team [76]. However, the successful achievement of skills training depends more on collaboration and attention of their family members than professional staff.

Stimulating child development in the correct way includes giving love and care that develops their physical and mental capabilities to full potential. Encouraging and stimulating child development depends on the background of each family, as described below [77].

1) Reaching to understanding about the limitations each family has is important such as lacking necessities for living, domestic violence or parents with mental problems, and these families need preliminary support or counseling. Promoting child development not only emphasizes child training skills, but also encourages the family to be caregivers in full potential.

2) Due to the limited of interaction with parents or caregiver, promoting activity participation, playing and responding can encourage intellectual and emotional development in a child. Moreover, the child experiences more behavioral problems than normal children because they are informed about their needs and could not understand the cause and effect of any situation. Therefore, advice should be given to the parents to understand, accept and considered the mood, interest and needs of the child.

3) Promoting child development programs at home include gross motor training for a child with movement defects, fine motor training for a child with eye to hand impairment or the DIR/floor–time model for a child with several or global developmental delay. Families with complete basic factors for living and healthy family relationships are more ready to perform these programs than others.

4) Specific therapeutic training with professional staff can include drug therapy or any useful equipment/technology, e.g., auditory integration, augmentative communication system and picture exchange system.

Developmental Individual Difference Relationship Based (DIR/floor–time Model) was developed by Greenspan S et al. [78]. The model effectively reserved time with the child including attaching importance to life skills of relationships, communication, thought and understanding mood. The principle of the model was that children were the leaders in playing or were the first to do any activities, and the parents participated with, or were involved in the training of problem solving by creating a condition or obstacle with their child. The DIR/floor–time Model could be used with all of the normal, delayed development or autistic children and consists of three methods, as described below [76, 77, 79].

1) Floor–time promotes family members to participate in playing or be involved in any activities with their child wherein the child acts as a leader in playing, based on the following concepts.

(1) The concept of promoting development can be changed in each area into functional development, composed of concentration, bonding, relations, visual and symbolic communication and reasoning connection. These are based on the requirement and mood of the children to be applied and solve problems in daily life.

(2) Attaching importance to individual differences can help the child to display appropriate behavior, innate character or emotion as they differ such as being sluggish, deft, sensitive, avoiding society, or unable to control oneself etc. Of these, parents emphasize understanding and accepting the differences of each child and encourage appropriate interaction with them. Moreover, they reserve time to talk or ask for the reason of their actions, so that a child can understand their emotions and feelings including training to solve problems with many choices. The most important training is creating self–discipline rather than restrictions or punishment.

(3) To build the values of love, closeness and warm relationships, the interaction between children and parents requires reserving time and

participating in family activities that build security and help them faces the outside world confidently.

(4) To encourage a child to think, solve problems, communicate and respond appropriately, parents need to understand the temper and the feelings of oneself more than emphasizing outcomes.

2) Skills training at home aims to train new skills or strengthen specific defected areas where caregivers serve as trainers. The training and teaching should imitate situations of daily life and gradually add new skills during teaching. All this, does not use much time for training and increases a child's joy or builds interest to attend as important.

(1) Training and teaching such as self–help training in dressing or excretion includes development training in new skills such as listening to the leader and tone of voice or speech training, imitation training such as drawing, bearing, throwing a ball and playing with a toy.

(2) Training should improve basic skills defects, including:

- Visual and spatial processing such as seeking for playthings, grasping, throwing a ball or following the torchlight with the eyes.

- Auditory processing such as listening training with various sounds, trying to reach an understanding of complicated commands and responses.

- Motor planning and sequencing such as adding the difficulty level or complexity of playing and skill for movement.

- Sensory activity such as balancing on a ball, jumping on a trampoline and massage.

3) Systematic training includes training with professional staff to promote the development of specific areas such as speech and language training by a speech or language pathologist, fine motor and sensory integration training by an occupational therapist or play training and behavior modification by a psychologist.

To support and stimulate development begins at assessing the potential of children and their families together and searching for any problems. Considering the preparedness and interests of the child, parents can gradually add new skills starting at the simple to the difficult level. Parents are suggested to record the changes of their child and the anxiety of the parents for follow–up and evaluation. In addition, health staff serves as a model of practice and talking with the child with a truthful, creative and non–judgmental attitude.

2.1.3.1 Child development stimulation services

Many models can stimulate child development services, based on materials, staff and type of child. Currently, more centers for child development stimulation and increased numbers of health professional specialists can help to impart knowledge of child development. Thus, child development can be assessed regularly, children with development problems can be detected at an early time and the family and their child can access medical services easily and rapidly. The early childhood intervention results in an earlier a child development and better progress, when a child is diagnosed with delayed development since early age [80, 81]. For all of these, early childhood intervention depends on collaborating as a team of multidisciplinary specialists, and the most important factor is their family can understand and assist a child with delayed development regularly [76].

The proceedings of stimulating child development service provided, as described below [82, 83].

1) Communicating with children and family members in a comfortable atmosphere relies on understanding the general health data of the child, parents, their families, hereditary disease, values, beliefs, culture, relationships between children and parents and among family members, family type, education and socio–economic status etc. Building familiarity creates the chance to participate in self–help care. Parents or caregivers need to be aware of the roles and responsibilities in child care including recommended and commended fully–assured proper performances. It requires great effort and patience to care for the child and useful to consider the services provided.

2) Growth and nutrition status is assessed by measuring weight, height, head circumference and growing rate and compared with standard values and growth chart. In addition, oral health care should be followed up.

3) Developmental screening and assessment by physical examination emphasizes the nervous system and behavioral development to detect risk groups or development pattern deviating from the norm. The systematic assessment of development level must use reliable instruments such as Denver II, Capute Sacles and others to test balance and gross motor, fine motor adaptive skills and eye to hand coordination, language and communication, social skills and self–help including intelligence quotient level to know the capabilities and defects of that child.

4) Health systemic examination such as the test of eye sight, hearing, communication and speech, genital growth and gender characteristics assess health status, detect any defects that ought to receive treatment including special laboratory tests for screening ulterior defects such as hemoglobin, hematocrit, thalassemia anemia, phenylketonuria and hypothyroid to correct and appropriately diagnose and treat.

5) Early identification of their physical problems, development, behavior and interaction with surroundings leads to early interventions.

6) Treatment and early intervention that are applied by means of environment modification and development stimulation training activities are suitable for both increasing the capabilities of each child and achieving the purposes of training. Training activities emphasize doing by themselves to learn support of sensation, movement, solving problems, speaking and communication as well as behavior modification. These rely on teamwork of multidisciplinary teams and the collaboration and concentration of their families. The programs or procedures used in the present time include the DIR/floor–time Model, Applied Behavior Analysis (ABA) and Sensory Integration Therapy (SIT). Furthermore, drug therapy might be used in some cases to reduce manners or behaviors that are harmful and create obstacles to the learning processes.

7) Periodic follow–up and evaluation of development stimulation services might compare evaluation of individuals before and after receiving services as well as evaluating the efficacy and effectiveness of procedures

that affect the child's progression. Moreover, suggestions are sought regarding development stimulation training and parents, caregivers are encouraged to evaluate community–based rehabilitation continuously and regularly to provide better care for that child.

2.1.3.2 The benefits of child development stimulation

Early detection and early development intervention of children with delayed development decreases disabilities including being able to develop to almost full potential and live more effectively in the first three years [73]. Currently, we could not predict how much a child who receives development stimulation can progress, but several studies have recommended improved outcomes and prediction of early development stimulation could be excellent when cooperation from their parents or caregivers is given [77].

Stimulating development services and supervising systematically by collaborating with the multidisciplinary teams and family can increase the effectiveness of those services. In addition, they increase the benefits for that child, family and society, as described below [84–86].

1) Encouraging the child in physical, emotional, mental and social developmental milestones and self–help potential should emphasize that family members participate in providing continual and regular care and assistance in child development stimulation training including demonstrating love, attachment and spending time participating in family activities.

2) Preventing undesirable complications such as behavioral and emotional problems in the child with speech and language delayed development is required because they could not communicate to others clearly. The case of irregular physiotherapy related to cerebral palsy can give rise to joints adherence and create obstacles to movement. In addition, developing the quality of life so that children reach their potential by themselves will reduce caregivers' burden.

3) Morale and confidence boosting by the parents for child care as best as possible will support them in fine adjustment and acceptance of their child's problems to help bond between child and their family members, sympathize

and dare for confront any problems to live happily together. Moreover, the pressure and stress of child care will decrease to a minimum.

4) Children must have happiness, motivation and confidence to attempt to perform anything when they receive understanding, attention and encouragement from their parents.

5) Development stimulation will decrease the expenditure or budget support from society that is used for care provided to the children with delayed development or disabilities includes education expenditure which is consumed for special education needed by those children.

2.2 Mental Health

Mental health as a complex system of spiritual development of a person learned for survival that relies on integrating the meaning of life and the environment allowing them to respond appropriately including being able to assess the mental health of that person. In addition, it still remains an important and necessary science to establish plans to prevent, promote and rehabilitate that person to manage any negative effects.

2.2.1 Definition of mental health

Mental health is the mental state or changeability of a person that naturally adjusts and changes according to the surroundings and depends on internal factors of that person. Various definitions are described below.

The World Health Organization [87] defines mental health as the state of happiness in the mind, the emotion and social interactions, being able to understand one's own capabilities, appropriately facing and solving problems, working with efficiency and being useful in social interactions as well as managing healthy relationships.

The Department of Mental Health [88] defines mental health as the state of happy life produced from self–perceptions and optimistic attitude including managing

and creating appropriate thoughts, moods, appearance to oneself, others and society under altered surroundings and times.

Satirapanya C and Kotchabhakdi W [89] concluded that mental health was the state of happy life, steady moods, changeability in surroundings, capabilities in work and satisfaction with living together.

Mongkol A et al. [90] defined mental health as a state of well–being that produces the ability to manage any problems for appropriate living, reaching the potential in developing oneself to attain a good quality of life, under changing society and environments including the moral principles of that person.

In conclusion, mental health is viewed as the perfection of a person physically and mentally, prepared to face and solve negative situations, manage satisfactory relationships with other persons, appropriate adaptation to new situations and environments as well as producing efficient benefits to oneself, one's family and society.

2.2.2 Factors influencing mental health

Mental health problems are rather complicated mental conditions that cannot directly indicate the cause, as all this depends on foundations and supporting factors of a person. Three varying viewpoints regarding as represented below [88, 91, 92].

1) The medical profession viewpoint is based on three theories described below.

(1) One theory states mental problems occur directly by genetic factors.

(2) One theory states mental problems occur by physical conditions of any system of the body and the majority of cerebropathy, metabolism or endocrine system dysfunctions. These not only bring about of behavior, thought and emotion but also depend on brain function, chronically illness or disabilities require long term care or treatment and unfortunately may have no chance to be cures and that possibly causes an inferiority complex and mental health problems that lead to mental illness.

(3) One theory states mental problems occur by environment and the family is the most influential factor to mental health and behavior. Biophysical environmental factors such as crowding, disaster and parenting as well as socio–cultural factors such as traditions and customs, beliefs and values naturally influence their minds and stimulates personality deficiencies stifles the mind.

2) The social science viewpoint explains the causes of mental problems categorized in five items described below.

(1) The medical concept explains that mental disorders and physical health conditions are similar and can be treated by drug therapy or Electro Convulsive Therapy (ETC).

(2) The psycho–analytic concept based on Sigmund Freud's theories states that mental health problems stemming from maladjusted defense mechanisms can be treated by psychotherapy and psycho–analysis.

(3) The learning concept based on Pavlov's and Thorndike's theory states that mental health problems occurred of learning and training until familiar and can be treated by behavior therapy.

(4) Thomas Scaz's concept (cited in Otrakul A [93]) states that mental problems are not a disease but are produced from confronting problems in life and presented as symptoms.

(5) The stress concept expresses that stress is displayed both physically and mentally in surroundings when a person receives of stimulating factors. Adapting by confronting or fleeing from the stress creates feelings of fear or anxiety and might become a neurosis when it frequently arises.

3) The psychological viewpoint expresses the causes of mental problems are divided in two items described below.

(1) Internal factors such as bodily illness with chronic disease or any disabilities, disappointments in life or love causes distress, unstable moods, conflicts and mental disorders.

(2) External factors causing mental disorders and classified as four items are described below.

- Social factors that rather complicated factors and directly affect the body, mind, mood and personal needs such as obtaining education, encountering economic problems, dealing with social pressure and insecurity in life and properties, meeting life crises, family conflicts and unemployment including social and environmental changes.

- Cultural factors involve conflicts connected to differing traditions and customs.

- Spiritual factors such involve conflicts of religious beliefs and treatment plans, disappointment from anything that lacks trusts or could not satisfy faith and beliefs, affecting live and causing anxiety or fear.

- Interpersonal relationship brings about feelings of love, hate, jealousy, anxiety and fear from social interaction and stem from family relationships.

In conclusion, bio–physical, social and environmental factors influence mental health status making life unstable and depending on the level and variations. Providing that people have natural healthy mental status and feel secure, they can adjust and face any changes, but if they have not, will display irregular behavior, mood and personality.

2.2.3 Holistic characteristics of mental health

The Academic Affairs Committee of the Research Network and Development of Mental Health [91] has identified holistic characteristics of mental health divide in three dimensions described below.

1) The mental quality dimension or internal characteristics include:

(1) to concentrate on being satisfied with anything, enduring and being strong including controlling of emotions and behavior,

(2) to reach an understanding of their need that relate to reality and,

(3) to understand and perceived reality, assess situations correctly, hope for attainable goals and solve problems suitably.

2) The environmental management dimension or external characteristics include:

(1) to adjust to live happily, manage problems and surroundings and not cause trouble to oneself, others and society as well as performing one's own duties appropriately,

(2) to bring benefits to society with happiness and satisfaction and,

(3) to find connections at suitable times and places including building social networks to support each other.

3) The social dimension involves the social process and way of life that is inseparable and attaches more importance to social level than individual level. Choices and daily life of social members are determined by social processes.

2.2.4 Characteristics of a healthy mental state

Considering the mental health of a person whether they are healthy or not, could be demonstrated by roughly assessing their characteristics. In this regard, Satirapanya C and Kotchabhakdi W [89] suggested six characteristics of healthy mental stated as described below.

1) Thoughts and understanding of reality are reasonable, one can dare to face and solve problems suitably.

2) When one confronts any obstacle or stress, emotions are displayed appropriately including kept under controlled.

3) One is able to display social skills suitable for time and place, communicate sensations or think appropriately, find connections, adjust to congenial to others and not be excessively demanding or dependent.

4) Work is performed to the best of their ability, they enjoy, are happy and enthusiastic for working and work with genuine interest, adroitness and fulfill requirements.

5) Appeared sincerely and frankly of goodwill, generous and compassion to any persons.

6) One perceives and understands oneself truly, accepts one's advantages and disadvantages and achieves one's potential including performing suitably in living.

Jahoda M [94] reported the concepts for mental health assessment of a person depended on six indicators described below.

1) Assessing attitude of an individual toward his own self such as insulting themselves or being overconfident and conceited.

2) Assessing growth and development or self–actualization depending on growth motivation.

3) Assessing integration as the balance of psychic forces and controlling forces.

4) Assessing autonomy or independence from social influences that control behavior by rules and regulations, self–confident and being free from another's control.

5) Assessing perception of reality, undistorted by personal bias or emotion.

6) Assessing environment mastery that is suitable for self–adjustment in any situation, human relation and confident to confront problems.

Furthermore, Mongkol A et al. [95] studied The Thai Mental Health Indicators (Individual level) and determined the components of healthy mental state as described below.

1) Mental state is defined as a state of well: being happy or sorrowful, health status perceptions and mentally illness linked to physical illness.

2) Mental capacity is defined as mental capability to make connections and solve problems leading to life of happiness.

3) Mental quality is defined as the goodness in the mind that leads to a life of usefulness for oneself and society.

4) Supporting factors are defined as factors that support a person in healthy mental state and links to family members, society, occupation, income, religion and beliefs, ability to work including surroundings and feeling secure in life and properties.

The healthy mental state of persons stems from accomplishment in life and solving problems and decision making appropriately, desirability of behavior modification, managing their life as well as creating useful goals to oneself and others.

2.2.5 The effects on mental health of mothers of delayed development children

The family with delayed development children or other abnormalities experience stress to family members, parents or caregiver to accept that situation. Parents' emotional states change and become serious and prolonged feelings loss and important expectations for their child causes anxiety, stress or other negative emotions, as described below [96, 97].

1) Shock and denial phase: At the first time, when parents are informed about their child's delayed development, they disbelieve or deny. They often seek other professionals hoping for improvement. In some cases, parents feel dizzy, confused and search to review the underlying cause. This phase might involve defense mechanisms to minimize anxiety, which could appear infrequently or all the time.

2) Adjustment phase: In the next phase gradually continuing from the shock and denial phase or chronic sorrow phase, parents display feeling of anger and guilt. The feeling of guilt occurs when they review the cause and know that the illness is related to genetics and is not a preventable disease. Anger, occur when parents could not escape the truth and it increases when they experience hopelessness when assisting their child. Furthermore, parents become angry with themselves that they could not have a normal child, and sometimes display inappropriate emotions while feelings of guilt increase. How long these feelings last depends on the capability of understanding any situation and surroundings.

3) Reintegration and acceptance phase: In this phase, parents accept and understand the situation and find a way to solve problems. Sometimes, parents' emotions go up and down, but finally, they could adjust along with their child. In addition, the acceptance depend on various factors such as severity

of defects, care received from family members, peers or health staff and fundamental psychological state of their parents.

4) Freezing–out phase: This phase appears when parents have completed adjusting themselves and is indicated by having the maturity to accept the situation. They might have several choices or are able to arrange a caregiver to look after their children.

The mental response of the parents is enhanced exceedingly by pressure in the family and causes feelings of depression, stress, anxiety, hopelessness, uncontrolled emotions and behavioral change including suicide attempt [45]. Therefore, mothers possibly could not adjust to mentally illness and showed symptoms of mental disorder from the long–term stress and complexity of providing intensive care for children with delayed development.

2.2.6 Mental health assessment of mothers of delayed development children

By the year 1995, Berry JO and Jones WH [46] developed the Parental Stress Scale (PSS) which applies the Parental Stress Index (PSI) of Abidin (1995) for caregiver's mental health assessment. The original version of the Likert scale of five–levels of PSS comprised 18 items: the scoring intervals ranged from 18 to 90. The total reliability was 0.83, test–retest reliability was 0.81, and Pearson's Correlation between the PSS and the PSI was at a good level ($r = 0.75$, $p - value < 0.01$).

This study, by Mongkol A et al. [90] among mothers of delayed development children, defined mental health as a state of well–being as a consequence of managing any problems for living, reaching the potential in developing oneself for a high quality of life, under changing society and environments including the moral principles of those persons. The researcher modified the Parental Stress Scale (PSS) developed by Berry JO and Jones WH [46] to assess maternal mental health. The reasons for using the instrument in this study are described below.

1) The instrument was developed for direct assessment of the caregivers' mental health. The results relate to the research objectives, to assess the mental health among mothers of delayed development children.

2) The reliability value of this instrument was acceptable. Total reliability was 0.83, test–retest reliability was 0.81, and Pearson's Correlation between the PSS and the PSI was at a good level ($r = 0.75$, $p - value < 0.01$).

3) Many items were difficult to understand and the researcher assisted the respondents to spend the minimum time in answering.

2.3 Concept of Family Relationship

The family unit has an important role in providing care and molding the members' personal characteristics, especially structure of personality, innate character and developing emotions such as a sense of belonging or love and warmth, that are an important base to develop relationships and capacity in adjustment. The Family Board of the National Women Promotion and Association Committee [98] has defined the family as a group of person concerned with mood and mind to live together as well as socio–economic interdependence, related to law or direct descendent and some families might have exceptions to those mentioned.

The Family Development to Stop Violence Against Women and Children Subcommittee [99] defined the healthy family, as described below.

1) Family members are harmonious, fond, interdependent and sympathize and cooperate in solving problems.

2) Family members participate in family activities and use of time usefully.

3) Family members engage in legitimate occupations, economize and improve financial status and economic security together.

4) The head of family provides an appropriate role model, is virtuous, bias free, nurtures the members effectively and exhibits religious or moral principles.

5) Parents, head of family or dignitary impart knowledge and wisdom to family members, promotes of education, regular self–development, presents creative ideas and logical reasoning.

6) Family members are able to care for their health needs including keeping their residence clean and neat.

7) Family members behaved well in social interactions and participate in environments rich in art and culture.

8) Family members act accordingly to principles of democracy, observe the law, human rights and carry out the duties of good citizenship as well as believe in and support the democratic form of government with the king as head of state.

2.3.1 Definition of family relationship

Interpersonal relationships affect the behavior displayed in families, especially family activities. Sacrificing, forgiving and consideration occur when those relations go on without trouble. Many academics have offered their definitions of family relationship, as explained below.

Kotchabhakdi N [53] described family relationship as an enrichment of bonds, love and consideration in family members as assessed from communication behavior, consultation, decision making and activity participation in an atmosphere of happiness.

Isaranurug S et al. [100] defined family relationship as the relations, familiarity or intimacy according to roles of family members. Relations appearing harmonious are regarded as healthy and if it not, unhealthy relations.

In conclusion, family relationship is the relations of family members, kindred or other persons living in their family that communicate, conferred on love and activity participation. All relations may be good or not.

2.3.2 Components of family relationships

Jutikul S (cited in Isaranurak S [101]) and Su–ampan A [102] recommended love, warmth or healthy relationship bringing family happiness are:

1) carefulness,

2) understand mutually in well,

3) respect,

4) responsibility,

5) trust,

6) encouragement,

7) forgiveness,

8) family communication,

9) reserved sufficient time,

10) sdjustable,

11) know one's work well and help each other and

12) bodily touching.

Moreover, Isaranurug S [101] reported healthy family relationships are based on:

1) admiring family members,

2) spending time to participate in family activities,

3) corresponding to living conditions of family members,

4) family communication,

5) believe in religion and practice of virtue in their social interactions and

6) capability in solving family crises.

2.3.3 The consequences of unhealthy family relationships

Having interactions with a person result in relationships and personal characteristics that immediate influence the thought and behavior of others. The perceptions of those influences as mentioned appear as three types, namely: 1) unilateral effect that perceives all effects, 2) reciprocal effect that interprets perceptions and produces responses and 3) mutual adaptation that displays behavior [103]. Notably, behavior displayed in daily life is based on family relationships and changes with family conditions, period of time including maturity of the family members. Healthy relationships bring their family and society to experience happiness. Regarding before or after arisen after the family crisis such as having a child with

abnormality, illness or divorce, brings the estranged family members to experience problems and be in conflict [99].

In addition, Isaranurug S [101] delineated the negative effects of unhealthy family relationship include:

1) lack of happiness, compromise, friendliness and estranged relationships that lead to family breakup.

2) personality and physical and mental health of family members that cause of domestic violence and violence against women and children and

3) undesirable behavior of family members such as roaming about, substance use and gambling.

Therefore, to encourage family members to attach importance to reserving time, managing life skills, maintaining communication, decreasing conflict, giving affection and performing their duties completely. Promoting healthy relations brings in family happiness serve as a part of quality and sustainable social development.

In conclusion, the family relationship is defined as the relations between family members especially mothers of delayed development children and relatives or other persons living in their family who participate in family activities, family communication, and demonstrate love including performing their duties appropriately. All relationships could be good or not. The researcher applied indicators and criteria of happy family life developed by Kotchabhakdi N [53] to assess family relationship comprising four indicators, i.e.,

1) spending time together and participating in family activities,

2) communicating, consulting, and decision making in all important things,

3) demonstrating love and careful appearance physically, verbally and mentally and

4) performing their duties appropriately.

2.4 Concept of Social Support

Social support is an important and influencing environmental factor to persons involved in relations and interdependent among all usual and critical situations. Currently, interest in social support concept is high especially in health service systems that support a person to adjust to any situations that cause stress with the result of improved health behaviors [104]. In addition, encouraging self–worthiness, sustains the belief that they are loved, cared for and socially accepted [105].

2.4.1 Definition of social support

Many academics have studied and offered their definitions or concepts of social support, as described below.

Cobb S [106] defined social support as when a person obtains information and is convinced that he receives love, care, esteem, praise and is socially accepted.

Pender NJ [107] defined social support as emotional, material and informational support and suggestions to the person perceived as belonging, acceptance, self–worthiness and blissful living in society.

House J [108] defined social support as the interpersonal relationship supporting emotional, informational, appraisal and instrumental needs and improved attachment, care, esteem including socially acceptance.

In conclusion, social support is defined as the interpersonal relationships in society that received assistance and support in emotional, social, informational and tangible support that builds feelings of attachment, care, esteem or praise as well as socially acceptance.

2.4.2 Types of social support

The concept of House J [108] divides social support into four kinds, as described below.

1) Emotional support involves feelings of love, relationship, trust, care, sympathy and attachment to a related person.

2) Appraisal support involves agreeing, giving feedback data, accepting and praising self–learning when compare with others that builds self–reliance in living with others in society.

3) Informational support involves suggestions, consultation, recommendations and information to guide in solving problems.

4) Instrumental support directly sustains material, money, time, services provided or labor.

Cobb S [106] divided social support into three kinds:

1) emotional support involving love, care and attachment,

2) esteem support emphasizing a person's self–worth and acceptance and

3) social support emphasizing a person perceives social acceptance as a member of a social network and feels valued in their social interactions.

Schaefer C et al. [54] identified social support in three kinds, as described below.

1) Emotional support involves given values, certainty and trust that makes a person feels loves, cared for and comforted.

2) Informational support involves given information, knowledge and suggestions including feedback on their behavior and practices to assist them to solve problems.

3) Tangible support is direct support for personal needs such as materials, money, labor or services provided.

2.4.3 Sources of social support

The concepts of Pender NJ [107] explain that persons receive social support from others in various groups, as described below.

1) Natural support system such as family supports that family member perceives or concedes requirements of each other as well as family communication efficiency.

2) Peer support system such as groups of persons that achieve success in self–adjustment skill and suggestions to solve problems that they have experienced before.

3) Religious organizations of denominations as a source of doctrine exchange, values, traditions and customs and suggestions on how to lead a life.

4) Organized support system of care giving or helping professional such as health professional staff and specific services. All these persons seek out this group when receiving insufficient support from their family and peer groups.

5) Organized support groups not directed by health professionals such as any specific service group, volunteer worker or self–help group as intermediary supports to a person who lacks opportunity to provide and access of any services for themselves including encouraging them to adjust to altered situations.

Additionally, the concept of House J [108] identified sources of social support in two groups by related type, i.e.,

1) informal groups such as a group of persons that are naturally related and uninvolved in their roles or work such as spouse, family member, kindred or friend and

2) formal groups such as a group of persons that are related based on their roles or work and supported in specific area such as health professional staff.

In this study, defined social support is based on the concept of Schaefer C et al. [54] as the interpersonal relationships among mothers of delayed development children and others in society and has received assistance or support in emotional, social, informational, material or labor needs that have created attachment, care and praise including social acceptance. In addition, the modified Medical Outcomes Study Social Support Survey (MOS–SSS) developed by Sherbourne CD and Stewart AL [55] identifies three aspects, as described below.

1) Emotional support is defined as having received love, warmth, care, attachment and trust.

2) Tangible support is defined as having received support of labor, materials, money and conveniences in all services.

3) Informational support is defined as having received information or suggestions useful for their life and health.

2.5 Related Research

Many factors are associated with mental health problems. In this study, the researcher reviewed from documents and literature identifying factors related to maternal mental health problems of delayed development children, as described below.

2.5.1 Mothers' personal–social factors

1) Age

The study of parenting stress and parents' willingness to accept treatment in relation to behavioral problems of children with attention–deficit hyperactive disorder by Lin YE and Chung HH [109] revealed the relation of mothers' age and parenting stress. According to the studies by Lee MY et al. [23] and Tseng TJ and Chou CC [24] a significant association was found between mothers' age and maternal mental health problems.

In contrast, the study of the relationship between caregiver's strain and social support among mothers with intellectually disabled children conducted by Tsai MB and Wang HH [42] showed that mother's age was not correlated to caregiver's strain. Furthermore, Liu CC et al. [29], Bourke–Taylor H et al. [28], Uskun E and Gundogar D [27], Eisenhower AS et al. [110], Leiter V et al. [68], Neece C and Baker B [111], Mobarak R et al. [30], Eisenhower AS et al. [112], Khamis V [32], Norizan A and Shamsuddin K [44], Witt WP et al. [67], Laurvick CL et al. [40], Ha JH et al. [113], Donenberg G and Baker BL [52], Hung JW et al. [19], Thurston S et al. [114] and Mathilde A and Lina KB [77] also showed that mothers' age had no association with their mental health status.

2) Religion

The study of parents' resources and home management of the care for chronically ill infants, conducted by Sterling et al. [116], demonstrated an association of religion and parent mental health. The study by Oka S and Ueda R [117] showed significant relation between religion and maternal mental health.

On the contrary, the study of mental health of parents having children with physical disabilities conducted by Hung JW et al. [19], Tsai MB and Wang HH [42] and Shin JY and Nhan NV [25] rejected the association of religion and caregivers' mental health.

3) Marital status

McCarthy A et al. [8] conducted a study of the predictors of stress in mothers and fathers of children with fragile X syndrome and found that marital status related to maternal stress. Moreover, a study by Kersh J et al. [118] also indicated a significant correlation of marital status and maternal mental health.

However, Parkes J et al. [9] studying parenting stress and children with cerebral palsy, rejected the association of marital status and parental stress. Moreover, the study by Thurston S et al. [114], Baker BL et al. [119], Tsai SM and Wang HH [42], Laurvick CL et al. [40], Shin JY and Nhan NV [25], Lin YE and Chung HH [109], Eisenhower AS et al. [110], Bourke–Taylor H et al. [28], Durmaz A et al. [38], Eisenhower AS et al. [112], Ha JH et al. [113], Norizan A and Shamsuddin K [44], Solem MB et al. [120] and a meta–analysis by Theule J et al. [121] also rejected the relation of marital status and maternal mental health status.

4) Occupation

Laurvick CL et al. [40] conducted a population–based study on physical and mental health of mothers caring for a child with Rett syndrome indicated a significant relationship between occupation and maternal mental health. According to the study by Thurston S et al. [114] unemployed mothers were found to having 3.4 fold greater odds of maternal stress than mothers of normal a child (OR=3.4, 95%CI=1.6–7.5).

A study by Tsai SM and Wang HH [42] showed that mother's occupation had no association with their strain. In addition, Parkes J et al. [9], Baker BL et al. [119], Solem MB et al. [120], Abbeduto L et al. [122], Kersh J et al. [118], Eisenhower AS et al. [112], Neece C and Baker B [111], Hsieh RL et al. [7], Uskun E and Gundogar D [27], Eisenhower AS et al. [110], Durmaz A et al. [38] and Norizan A and Shamsuddin K [44] also rejected the relationship of occupation and maternal mental health.

5) Personal disease

Tsai SM and Wang HH [42] conducted a study of the relationship between caregiver's strain and social support among mothers with intellectually disabled children, noting that caregivers' health condition related to their mental health.

However, the study of predictors of parenting stress among Vietnamese mothers of young children with and without cognitive delay, conducted by Shin JY and Nhan NV [25] rejected the association of health condition and maternal mental health. Furthermore, the study of Liu CC et al. [29] and Neece C and Baker B [111] also found that personal disease had no relationship with maternal stress.

6) Educational level

The study of behavioral problems and parenting stress of pre–school children with and without developmental delays of Baker BL et al. [119] found a relationship between educational level and maternal stress. Additionally, a study by Shin JY and Nhan NV [25], Solem MB et al. [120], Howe TH et al. [123] also supported these findings. A study of Larosa AC et al. [26] pointed out that mothers with less than a high school education were found to have 2.8 times increased risk to maternal stress (OR=2.8, 95%CI=2.0–4.1). According to Durmaz A et al. [38] mothers with below college of educational level were found to have 2.4 times higher risk to maternal stress (OR=2.4, 95%CI=1.0–5.5).

In contrast, the study conducted Liu CC et al. [29], Parkes J et al. [9], Hung JW et al. [19], Laurvick CL et al. [40], Ha JH et al. [113], Witt WP et al. [67], Lin YE and Chung HH [109], Neece C and Baker B [111], Khamis V [32],

Abbeduto L et al. [122], Lee MY et al. [23], Eisenhower AS et al. [112], Shin J et al. [124], Leiter V et al. [68], Uskun E and Gundogar D [27], Eisenhower AS et al. [110], Mathilde A and Lina KB [115], Smith TB et al. [125], Montes G and Halterman JS [22], McConkey R et al. [17] and Norizan A and Shamsuddin K [44] also reported that educational level had no relationship with maternal mental health status.

7) Average household income

The study conducted by Baker BL et al. [119] focused on behavioral problems and parenting stress overtime of the pre–school children with and without developmental delays, indicating an association of household income and maternal stress. Durmaz A et al. [38] revealed that mothers with lower monthly income were found to be 10.4 times higher at risk than the control group (OR=10.4, 95%CI=5.4–20.2). According to the study by Smith TB et al [125], Keller D and Honing AS [126], Raina P et al. [41], Lin YE and Chung HH [109], Emerson E [127], Uskun E and Gundogar D [27], Johnston C et al. [128], Mathilde A and Lina KB [115], Eisenhower AS et al. [112], Lee MY et al. [23], Abbeduto L et al. [122], Mobarak R et al. [30], Shin J et al. [124] and Savage S and Bailey S [129] also showed an association between household income and maternal mental health.

However, a study by Tsai SM and Wang HH [42] showed that monthly household income had no correlation to caregivers' strain. And Bromley J et al. [130], Ha JH et al. [113], Donenberg G and Baker BL [52], Khamis V [32], Weiss JA et al. [131], Kersh J et al. [118], Witt WP et al. [67], Hung JW et al. [19], Thurston S et al. [114], Bourke–Taylor H et al. [28], Feldman M et al. [36], Neece C and Baker B [111], Laurvick CL et al. [40], Montes G and Halterman JS [22] and Norizan A and Shamsuddin K [44] also rejected an association between average household income and maternal stress.

8) Duration of care

Tsai SM and Wang HH [42] studied the relationship between caregiver's strain and social support among mothers with intellectually disabled children and indicated significant correlations between duration of care and mothers'

strain. Moreover, the study of Lee SH and Wu SC [132] and Smith TB et al. [125] were also congruent with the results.

The study of parenting stress and related factors in parents of children with Tourett syndrome conducted by Lee MY et al. [23] rejected the correlation of duration of care and caregivers' mental health status.

9) Number of children

The study of parental depression symptoms: relationship to child development, parenting, health, and results on parent–reported screening tools, conducted by Larosa AC et al. [26] noted that mothers having more than three children in household had 2.3 times increased risk to maternal depression. A study of Bourke–Taylor H et al. [28] and Bourke–Taylor H [133] also showed similar results.

In contrast, Hung JW et al. [19] conducted a study of the mental health of parents having children with physical disabilities, demonstrating that the number of children had no relation with maternal mental health. In addition, the study by Bromley J et al. [130], Laurvick CL et al. [40], Tsai SM and Wang HH [42], Khamis V [32], Lee MY et al. [23], Mobarak R et al. [30], Ha JH et al. [113], Donenberg G and Baker BL [52], Emerson E [127], Baker BL et al. [119], Shin JY and Nhan NV [25], Durmaz A et al. [38], Lin YE and Chung HH [109], Mathilde A and Lina KB [115] and Norizan A and Shamsuddin K [44] also rejected any relation between number of children and maternal mental health.

10) Number of delayed development children

Witt WP et al. [67] studied the impact of childhood activity limitations on parental health, mental health and workdays lost revealing that caring for multiple children with activity limitations was found to be 1.7 times likely to have poor maternal mental health (OR=1.7, 95%CI=1.1–2.6). Furthermore, the study by Abbeduto L et al. [122] and Bourke–Taylor H et al. [133] also revealed similar findings.

On the contrary, Uskun E and Gundogar D [27] investigated the levels of stress, depression and anxiety of parents of disabled children in Turkey and found that

having another disabled child in the household had no association to maternal stress. The study by Bourke–Taylor et al. [28] also supported this finding.

11) Parenting competence

In the population–based study of Montes G and Halterman JS [22] those mothers reported that their child was harder to care for than most children, found to be 7.6 times likely to have maternal stress (OR=7.8, 95%CI=4.5–12.8). The study by Florian V and Findler L [134], Bourke J et al. [135], Butcher PR et al. [136], Ketelaar M et al. [137], Johnston C and Mash EJ [50], Liu CC et al. [29], Hassall R et al. [138], Bourke–Taylor H et al. [28], Durmaz A et al. [38], Norizan A and Shamsuddin K [44], Lam L and Mackenzie AE [39], Jovanova NC and Radojichikj DD [43] and Cater AS et al. [139] also revealed significant relationship between parenting competence and maternal stress.

However, the study of the mediating role of acceptance and empowerment of the impact of child problem behaviors of children with ASD on parent mental health by Weiss JA et al. [131] rejected the association between parental competence and maternal mental health. Furthermore, Kersh J et al. [118] and Solem MB et al. [120] also rejected this association.

12) Family type

The study of the impact on mothers of bringing up a child with intellectual disabilities conducted by McConkey R et al. [17] found significant association of family type and maternal mental health. Moreover, Emerson E [127] also found significant association between family type and maternal mental health in that the single parent, especially mothers had more mental health problems.

In contrast, Witt WP et al. [67] studying the impact of childhood activity limitations on parental health, mental health, and workdays lost by their parents, rejected the relationship of family type and parental stress. In addition, the study by Donenberg G and Baker BL [52], Mobarak R et al. [30], Solem MB et al. [120], Hsieh RL et al. [7] and Feldman M et al. [36] rejected the relationship of family type and maternal stress.

2.5.2 Child's personal factors

1) Sex

The study of parental depressive symptoms: relationship to child development, parenting, health and results on parent–reported screening tools, conducted by Larosa AC et al. [26] reported that boys were at increased risk to maternal mental health problems up to 1.4 times compared with girls (OR=1.4, 95%CI=1.0–1.9). The studies by Emerson E [127], Theule J et al. [121], Lee MY et al. [23], Lin TE and Chung HH [109] and Lam L and Mackenzie AE [39] also supported this finding. Additionally, Shin JY et al. [124] and Sabih F and Sajid WB [140] also showed that having a girl increased higher risk to mental health problems than having a boy.

However, Parkes J et al. [9] studied parenting stress and children with cerebral palsy and rejected the relationship between a child's sex and maternal stress. Also, the study by Baker BL et al. [119], Hung JW et al. [19], McConkey R et al. [17], Bromley J et al. [130], Weiss JA et al. [131], Lacavalier L et al. [11], Thurston S et al. [114], Uskun E and Gundogar D [27], Totsika V et al. [31], Donenberg G and Baker BL [52], Hoffman CD et al. [141], Abbeduto L et al. [122], Herring S et al. [142], Khamis V [32], Sipal RF et al. [143], Shin JY and Nhan NV [25], Eisenhower AS et al. [112], Neece C and Baker B [111], Leiter V et al. [68], Liu CC et al. [29], Eisenhower AS et al. [110], Mathilde A and Lina KB [115] and Norizan A and Shamsuddin K [44] also rejected the relationship between child's sex and maternal mental health.

2) Age

Totsika V et al. [31] studied behavioral and emotional problems and maternal health: association with autism spectrum disorder and intellectual disability children and demonstrated that child's age significantly increased the odds for maternal emotional disorders (OR=1.0, 95%CI=1.0–1.1). Furthermore, the study by Sabih F and Sajid WB [140], Emerson E [127], Khamis V [32], Hsieh RL et al. [7], Lin YE and Chung HH [109], Lee MY et al. [23] and Mobarak R et al. [30] also demonstrated significant association between child's age and maternal mental health.

In contrast, the study by Tsai MB and Wang HH [42] demonstrated that child's age had no correlation to caregivers' strain. Moreover, the study of Sipal RF et al. [143], Bourke–Taylor H et al. [28], Baker BL et al. [119], Parkes J et al. [9], Bromley J et al. [130], Laurvick CL et al. [40], Uskun E and Gundogar D [27], Thurston S et al. [114], Herring S et al. [142], Weiss JA et al. [131], Donenberg G and Baker BL [52], Abbeduto L et al. [122], Liu CC et al. [29], Shin JY and Nhan NV [25], Eisenhower AS et al. [110], Leiter V et al. [68], Eisenhower AS et al. [112], Johnston C et al. [128], Solem MB et al. [120], Hung JW et al. [19], Mathilde A and Lina KB [115], Howe TH et al. [123], Feldman M et al. [36] and Norizan A and Shamsuddin K [44] also rejected the association of child's age and maternal mental health.

3) Child birth order

A cohort study of Munk–Olsen T, Jones I and Laursen TM [144] investigated birth order and postpartum psychiatric disorder and confirmed that primiparous mothers had 8.7 times higher risk of psychiatric disorders (RR=8.7, 95%CI=6.9–10.9). After the second birth, the risk was increased to 2.0 times (RR=2.0, 95%CI=1.5–2.7).

However, Larosa AC et al. [26] rejected the association of child's birth order and parental depressive symptoms. In addition, the study of Uskun E and Gundogar D [27] and Donenberg G and Baker BL [52] also contributed this finding.

4) Type of delayed development

A European cross–sectional survey of parenting stress and children with cerebral palsy conducted by Parkes J et al. [9] reported that children with language and communication impairment were found to be 1.9 times increased risk for maternal stress (OR=1.9, 95%CI=1.2–3.0) and children with fine motor dysfunction had a 2.5 times significantly higher risk of maternal stress (OR=2.5, 95%CI=1.4–4.3). Additionally, a child with gross motor dysfunction had a 1.7 times increased risk of maternal stress, but without significant association (OR=1.7, 95%CI=1.0–2.8). The study by Neece C and Baker B [111], Webster RI et al. [35], Bourke J et al. [135], Tervo RC [10] and Smith TB et al. [125] also showed similar findings.

The study by Lacavalier L et al. [11] explored the impact of behavioral problems on caregiver stress in young people with autism spectrum disorders and rejected the relationship of type of delayed development and maternal stress. In addition, Uskun E and Gundogar D [27] also rejected any relationship between type of delayed development and caregivers' mental health.

5) Syndrome group

Totsika V et al. [31] conducted a study of behavioral and emotional problems and maternal health associations with autism spectrum disorder and intellectual disability revealing that autism was found to be at 1.8 times increased odds for maternal emotional disorder (OR=1.8, 95%CI=1.1–2.9). Moreover, the study by Montes G and Halterman JS [22] showed that mothers of ASD were found to be 2.4 times more likely to have poorer emotional health (OR=2.4, 95%CI=1.3–4.5). Likewise, the study of Taylor HB et al. [133], Tervo RC [10], Eisenhower AS et al. [110], Bourke–Taylor H et al. [28], Yirmiya N and Shaked M [37], Abbeduto L et al. [122], Estes A et al. [145], Hoffman CD et al. [141], Theule J et al. [121], Rao PA and Beidel DC [146] and Bourke J et al. [135] also supported these results.

In contrast, Weiss JA et al. [131] studied the impact of child behavioral problems of children with autistic spectrum disorder on parent mental health and rejected the relationship of child's disorder condition and parent mental health. Similarly, the study by Herring S et al. [142], Norizan A and Shamsuddin K [126], Estes A et al. [14] and Hastings RP et al. [147] also found that maternal stress did not differ by syndrome group.

6) Child's adaptive developmental quotient

The study by Webster RI et al. [35] focused on child health and parental stress in school–age children with preschool diagnosis of developmental delay and indicated that mothers of children with moderate or severe delay had a 3.7 times significant increased risk of maternal stress (OR=3.7, 95%CI=1.1–2.0). According to the study by Baker BL et al. [34], Tsai MB and Wang HH [42], Khamis V [32], Abbeduto L et al. [122], Mathilde A and Lina KB [115], Smith TB et al. [125], Keller D and Honing AS [126], Leiter V et al. [68], Lee MY et al. [23], Kersh J et al.

[118], Feldman M et al. [36], Raina P et al. [41], Hassall R et al. [138], Butcher PR et al. [136], Ketelaar M et al. [137], Cater AS et al. [139] and Tomanik S et al. [148] also indicated a similar relationship.

In contrast, Estes A et al. [14] conducted a study of parenting stress and psychological functioning among mothers of preschool children with autism and developmental delay and rejected the relationship of child's adaptive developmental quotient maternal stress. Further the study by Bromley J et al. [130], Estes A et al. [145], Hung JW et al. [19], Bourke–Taylor H et al. [28] and Lin YE and Chung HH [109], also rejected the relationship.

7) Results of sensation test

The study of Parkes J et al. [9] demonstrated that a child with blindness or no useful vision was found to be 2.3 times at increased risk of maternal stress, while the child who needs hearing aids had 5.3 times greater risk of maternal stress (OR=2.3, 95%CI=1.2–4.3 and OR=5.3, 95%CI=1.9–14.6, respectively).

In contrast, Bourke J et al. [135] studied maternal physical and mental health in children with Down syndrome and showed that a child with ear problems held no association with maternal mental health.

2.5.3 Environmental factors

1) Family member involvement

The perceptions and feeling of parents of children with Down syndrome, conducted by Durmaz A et al. [38] found that mothers reported that their spouses did not look after their child with Down's syndrome and was found to be 20 times higher than that of the control group (OR=19.9, 95%CI=2.5–157.0). In addition, minority families reported that both mothers and their husbands look after their child and try to solve the problems of caring for a child together and was found to be 2.4 times greater at risk than those in the control group (OR=2.4, 95%CI=1.0–5.8). The study by Tehee E et al. [149], Knafl KA and Deatrick JA [150], Johnson NL and Simpson PM [151], Sue H and Ruth D [152], Smith TB et al. [125], Shin JY et al. [124] and Lam L and Mackenzie AE [39] also found that family member involvement in child care was significantly associated with maternal stress.

On the other hand, Bourke–Taylor et al. [28] showed that family member involvement was not associated with maternal mental health problems.

2) Family impact

A study conducted by Durmaz A et al. [38] showed that mothers having a child with Down's syndrome had 2.5 times greater possibility to get divorced (OR=2.5, 95%CI=1.1–5.7) and had 1.8 times greater report of having problem with the fathers because of these children (OR=1.8, 95%CI=0.8–3.9), and had 5.8 times more report of having a delayed children (OR=5.8, 95%CI=0.7–51.1) compared with mothers without disabled child. Donenberg G and Baker BL [52], Thurston S et al. [114], Johnson RF et al. [153], Mathilde A and Lina KB [115], Taanila A et al. [154], Emerson R [127], Hsieh RL et al. [7], Lam L and Mackenzie AE [39] and Baker BL et al. [119] also noted similar relationship.

In contrast, Skotko BG et al. [71] indicated no association between family impact and maternal stress.

3) Family relationship

Thurston S et al. [114] studied the associations and costs of parental symptoms of psychiatric distress in a multi–diagnosis group of children with special needs reporting that poorer family relationship had 1.2 times increased effect to maternal psychiatric distress (OR=1.2, 95%CI=1.1–1.3). Additionally, Raina P et al. [41], Emerson E [127], Johnston C et al. [128], Laurvick CL et al. [40] and McCubbin MA and McCubbin HI [155] also indicated that family relationship was significantly associated with parent mental health.

On the contrary, Johnson RF et al. [153] conducted a study of the maternal perspective in caring for a child with learning disabilities who presented problem behaviors and demonstrated that family relationship was not associated with maternal mental health status. Moreover, a study by Keller D and Honing AS [126] contributed identical results.

4) Residence area

The study by Larosa AC et al. [26] revealed that mothers who lived in urban residence had 1.7 times increased risk of mental health problems (OR=1.7, 95%CI=1.2–2.3).

In contrast, Mobarak R et al. [125] studied predictors of stress in mothers of children with cerebral palsy showing that residence area was not associated with maternal stress. Furthermore, Parkes J et al. [9] also supported these results.

5) Social support

The study by Tsai MB and Wang HH [42] investigated of the relationship between caregiver's strain and social support among mothers with intellectually disabled children revealing an association between social support and maternal mental health. Regarding to the study by Weiss MJ [20], Mathilde A and Lina KB [115], Eisenhower AS et al. [110], Thurston S et al. [114], Raina P et al. [41], Jovanova NC and Radojichikj DD [43], Cater AS et al. [139], Feldman M et al. [36], Lee MY et al. [23], Shin JY and Nhan NV [25], Shin JY et al. [124], Pfeifer LI et al. [156], Butcher PR et al. [136], Willingham–Storr GL et al. [157], Hassall R et al. [138], Taanila A et al. [154], Howie–Davies R and McKenzie K [158], Keller D and Honing AS [126] and Savage S and Bailey S [129] also revealed that social support was significantly related to caregivers' mental health.

In contrast, the study by Mobarak R et al. [30] rejected any association of social support and maternal stress. In addition, the study by Kersh J et al. [118] and Norizan A and Shamsuddin K [44] also rejected this association.

CHAPTER III
MATERIALS AND METHODS

This analytic research is an unmatched case–control study, aimed to study factors associated with mental health problems of mothers of delayed development children that received services at development stimulation clinics in hospitals in the southern region from October 2013 to March 2014.

3.1 Study Population and Sample Size

3.1.1 Study population

The study population comprised the mothers of children aged 0–5 years old with delayed development that received services at development stimulation clinics in hospitals of three provinces in the southern region: Surat Thani, Nakhon Si Thammarat and Songkhla from October 2013 to March 2014.

1) Inclusion criteria

(1) Mothers aged 18 years or more.

(2) Mothers able to speak, write and communicate in Thai, without hearing loss and eye sight impairment.

(3) Mothers willing to participate, sign informed consent forms, and receive a detailed explanation of this study.

(4) Mothers with a summarized score interval 11–31 points on the mental health screening based on the criteria of the American Psychiatric Association [159].

2) Exclusion criteria

(1) Mothers fitting the inclusion criteria, but who could not contacted on data collection periods.

3) Subject allocation criteria

The mothers of children aged 0–5 years old with delayed development that brought their child to receive services at development stimulation clinic and had the summarized score interval 11–31 points on the mental health screening test. Scores were interpreted as mental health problems or below average mental health score and allocated as the case group.

Mothers of children aged 0–5 years old with delayed development that brought their child to receive services at development stimulation clinic and had the summarized score interval 32–44 points on the mental health screening test. Scores were interpreted as not having mental health problem or average or better than average mental health score and allocated as the control group. In addition, controls were recruited from the same hospital as cases. These were based on the criteria of the American Psychiatric Association [159].

4) Withdrawal or termination criteria

(1) The participants unwilling to participate could ask at any time to withdraw or terminate from the principle investigator, doctor in charge of patient, or staff of the development stimulation clinic.

(2) The participants willing to participate in the study and later asking to terminate or withdraw while answering the questionnaires because of uncomfortable feelings and so could not give that data.

3.1.2 Sample size

This analytic study was an unmatched case–control study where Case: Control = 1 : k folds. The sample size estimation was calculated using the formula of Schlessman JJ [160].

$$n = \frac{[Z_{\alpha/2}\sqrt{(1+1/k)\bar{\pi}^{*}(1-\bar{\pi}^{*})} + Z_{\beta}\sqrt{\pi_1^{*}(1-\pi_1^{*}) + \{\pi_2^{*}(1-\pi_2^{*})/k\}}]^2}{(\pi_1^{*}-\pi_2^{*})^2}$$

Whereas,

n = Desirable sample size, which $n_1 = n$, and $n_2 = k\ n_1$

n_1 = The sample size of mothers of delayed development children and had mental health problems (Cases)

n_2 = The sample size of mothers of delayed development children and had no mental health problems (Controls)

k = Ratio of the controls per the cases was 2

π_1^{*} = Proportion of the cases at risk to factor (less than a high school education), calculated by the formula $\frac{(OR)\pi_2^{*}}{(OR)\pi_2^{*} + (1-\pi_2^{*})}$

π_2^{*} = Proportion of the controls at risk to factor (less than a high school education) was 0.225 [26]

$\bar{\pi}^{*}$ = An average rate of receiving risk factor in both cases and controls groups, calculated by the formula $\frac{(\pi_1^{*} + k\pi_2^{*})}{(1+k)}$

OR = Odds Ratio was 3, from mothers' education factor

$Z_{\alpha/2}$ = A standard statistical value under the normal curve was 1.96, when significance level was 0.05

Z_{β} = A standard statistical value under the normal curve was 1.28, when significance level was 0.1

Thus,

$$\pi_1^{*} = \frac{(OR)\pi_2^{*}}{(OR)\pi_2^{*} + (1-\pi_2^{*})} = \frac{3(0.225)}{3(0.225) + (1-0.225)} = 0.466$$

$$\bar{\pi}^{*} = \frac{(\pi_1^{*} + k\pi_2^{*})}{(1+k)} = \frac{0.466 + 2(0.225)}{(1+2)} = 0.305$$

$$n = \frac{[Z_{\alpha/2}\sqrt{(1+1/k)\bar{\pi}^{*}(1-\bar{\pi}^{*})} + Z_{\beta}\sqrt{\pi_1^{*}(1-\pi_1^{*}) + \{\pi_2^{*}(1-\pi_2^{*})/k\}}]^2}{(\pi_1^{*}-\pi_2^{*})^2}$$

$$n = \frac{[1.96\sqrt{[(1+1/2)(0.305)(1-0.305)]} + 1.28\sqrt{0.466(1-0.466)+\{0.225(1-0.225)/2\}}]^2}{(0.466-0.225)^2}$$

$$n = 60.75$$

The calculated sample size of mothers of delayed development children who had mental health problems (Cases) totaled 70 participants, and the mothers of children with delayed development who had no mental health problems (Controls) totaled 140 participants. Therefore, this study recruited 210 participants.

3.1.3 Sampling technique

The desirable sample size was obtained using the systematic sampling technique of the sampling frame, by way of dividing the study population into equal intervals. To random the first unit of the study population and count the number added to the calculated random interval for the next unit. The formula was used to calculate the interval as shown below [161].

$$k = \frac{N}{n}$$

Whereas,

N = Total number of delayed development children that received services at development stimulation clinics in hospitals of three provinces in the southern region: Surat Thani, Nakhon Si Thammarat and Songkhla, during fiscal years 2008–2012, totaled 574 [162–164].

n = The study sample size was 210

Thus,

$$k = \frac{574}{210} = 2.7$$

Therefore, the calculated intervals of each study population unit comprised 3

3.2 Research Instruments

In this study, data was collected using questionnaires and record forms as explained below.

3.2.1 The questionnaire consisted of eight parts as described below.

Part I. General information The researcher developed the questionnaire of mothers' personal–social factors and child's personal factors from documents and literature review comprising 20 items and classified in two sections as explained below.

Section I. Mothers' personal–social factors including residence province, residence area, age, religion, marital status, occupation, personal disease, educational level, average household income, duration of care, number of children, number of the delayed development children, family type and travelling convenience to hospital.

Section II. Child's personal factors including sex, age, child birth order, chronically illness, delayed development and aged when delay appeared.

Part II. Child's adaptive developmental quotient The researcher modified the screening test from the Denver Developmental Screening Test (DDST), developed by Frankenburg WK et al. [47] edited and translated into Thai version by Kotchabhakdi N and Lert–Awasadatrakul O [48] to assess the development quotient of the children with delayed development. It identifies development milestones composing three dimensions were: 1) activities of daily living; 10 items, 2) mobility; 12 items, and 3) communication and verbalizing needs; 8 items. The answering and scoring of the instrument is explained below.

No assistance	means	a child who performs all skills completely by oneself, 2 points
Some assistance	means	a child who sometimes needs assistance to performs any skills, 1 point
Complete assistance	means	a child who never performs any skills, 0 point

The interpretation of development quotient was measured based on the Adaptive Developmental Quotient (DQ), and is defined as a ratio of the functional age to the chronological age. It is a means to express delayed development, calculated by the formula $\frac{Developmental - age}{Chrono\log ical - age(month)} x100$

Score less than or equal to 70%	means	severe delay
Score interval 71%–84%	means	mild to moderate delay
Score greater than or equal to 85%	means	normal development

Part III. Family member involvement This three–levels rating scale instrument was modified from of the Who Does What Questionnaire, developed by Cowan CP and Cowan PA [49] to assess the level of family member involvement. The score interval ranged from 0–20 points and the answers were divided in three levels.

Have not	means	have not or never performed that statement
Sometimes	means	perform that statement occasionally
Regularly	means	perform that statement every day

1) Six items were positive statements, i.e., 1, 2, 3, 4, 6 and 9.
2) Four items were negative statements, i.e., 5, 7, 8 and 10.

The scoring conditions were:

Answer	**Positive Statement**	**Negative Statement**
Have not	0 point	2 points
Sometimes	1 point	1 point
Regularly	2 points	0 point

The interpretation of the levels of family member involvement was measured based on the interpretation criteria of Bloom B [165] as shown below.

Score less than 11 points	means	low level
Score interval 12–15 points	means	moderate level
Score more than 15 points	means	high level

Part IV. Parenting competence The four–levels rating scale of the parenting competence survey was modified from the Parenting Sense of Competence of Johnston C and Mash EJ [50] developed by Gibaud–Wallston J and Wandersman LP [51] to assess the level of the mother's competence of child care. The score interval ranged from 9–36 points and the answers were designed in four scales.

Strongly agree	means	the statement is completely what the mothers' feel
Agree	means	the statement is mostly what the mothers' feel
Disagree	means	the statement is slightly not what the mothers' feel
Strongly disagree	means	the statement is completely not what the mothers' feel

1) Four items were positive statements, i.e., 1, 4, 8 and 9.
2) Five items were negative statements, i.e., 2, 3, 5, 6 and 7.

The scoring conditions were:

Answer	**Positive Statement**	**Negative Statement**
Strongly agree	4 points	1 point
Agree	3 points	2 points
Disagree	2 points	3 points
Strongly disagree	1 point	4 points

The interpretation of the levels of parenting competence was measured based on the criteria stated below.

Score less than percentile 25^{th}	means	low level
Score intervals percentile 25^{th}–75^{th}	means	moderate level
Score more than percentile 75^{th}	means	high level

Part V. Family impact The four–levels rating scale of family impact survey was modified the Family Impact Questionnaire (FIQ), developed by Donenberg G and Baker BL [52] to measure the level of family impact of child care. The score interval ranged from 12–48 points and the answers were designed in four scales described below.

Have not	means	have not or never experienced the situation, condition or feeling or disagree with statement
Sometimes	means	have experienced the situation, condition or feeling that occurred occasionally or agree a little with statement
A lot	means	have experienced the situation, condition or feeling that occurred frequently or agree a lot of with statement
Very much	means	have experienced the situation, condition or feeling that occurred regularly or agree with statement absolutely

1) One item was positive statement, i.e., 7.

2) Eleven items were negative statements, i.e., 1, 2, 3, 4, 5, 6, 8, 9, 10, 11 and 12.

The scoring conditions were:

Answer	**Positive Statement**	**Negative Statement**
Have not	1 point	4 points
Sometimes	2 points	3 points
A lot	3 points	2 points
Very much	4 points	1 point

The interpretation of the levels of family impact was measured based on the criteria described below.

Score less than percentile 25^{th}	means	high level
Score intervals percentile 25^{th}–75^{th}	means	moderate level
Score more than percentile 75^{th}	means	low level

Part VI. Family relationship The researcher applied the four–levels rating scale of the Indicator and Criterion of Family Lived Happily, developed by Kotchabhakdi N [53] to assess the level of family relationship. The four indicators were: 1) time consuming for family activities participation; 2 items, 2) communicating, consulting, and decision making in all important things; 4 items, 3) love and carefulness appearance; 2 items, and 4) perform appropriately with responsibility; 2 items. The score interval ranged from 10–40 points and the answers were designed in three scales which were:

Strongly agree	means	the statement is completely what the mothers' feel
Agree	means	the statement is mostly what the mothers' feel
Disagree	means	the statement is slightly not what the mothers' feel
Strongly disagree	means	the statement is completely not what the mothers' feel

1) Six items were positive statements, i.e., 1, 3, 4, 6, 8 and 9.
2) Four items were negative statements, i.e., 2, 5, 7 and 10.

The scoring conditions were:

Answer	Positive Statement	Negative Statement
Strongly agree	4 points	1 point
Agree	3 points	2 points
Disagree	2 points	3 points
Strongly disagree	1 point	4 points

The interpretation of the levels of family relationship was measured based on interpretation criteria of Kotchabhakdi N [53] as described below.

Score less than percentile 25^{th}	means	poor family relationship
Score intervals percentile 25^{th}–75^{th}	means	fair family relationship
Score more than percentile 75^{th}	means	good family relationship

Part VII. Social support The researcher applied the social support concepts of Schaefer C et al. [54] and the four–levels rating scale of social support survey was modified from the Medical Outcomes Study Social Support Survey (MOS–SSS), developed by Sherbourne CD and Stewart AL [55] comprising three aspects: 1) emotional support; 4 items, 2) tangible support; 3 items and 3) informational support; 3 items. The score intervals ranged from 10–40 points and the answers were designed in four scales described below.

Strongly agree	means	the statement is completely what the mothers' feel
Agree	means	the statement is mostly what the mothers' feel
Disagree	means	the statement is slightly not what the mothers' feel
Strongly disagree	means	the statement is completely not what the mothers' feel

1) Seven items were positive statements, i.e., 1, 2, 4, 5, 6, 7 and 10.

2) Three items were negative statements, i.e., 3, 8 and 9.

The scoring conditions were:

Answer	**Positive Statement**	**Negative Statement**
Strongly agree	4 points	1 point
Agree	3 points	2 points
Disagree	2 points	3 points
Strongly disagree	1 point	4 points

The interpretation of the levels of social support was measured based on the criteria described below.

Score less than percentile 25^{th}	means	low level
Score intervals percentile 25^{th}–75^{th}	means	moderate level
Score more than percentile 75^{th}	means	high level

Part VIII. Mental health screening scale The four–levels rating scale of mental health survey was modified the Parental Stress Scale (PSS), developed by Berry JO and Jones WH [46] to assess maternal mental health problems. The score interval ranged from 11–44 points and the answers were designed in four scales described below.

Strongly agree	means	the statement is completely what the mothers' feel
Agree	means	the statement is mostly what the mothers' feel
Disagree	means	the statement is slightly not what the mothers' feel
Strongly disagree	means	the statement is completely not what the mothers' feel

1) Three items were positive statements, i.e., 7, 8 and 10.

2) Eight items were negative statements, i.e., 1, 2, 3, 4, 5, 6, 9 and 11.

The scoring conditions were:

Answer	**Positive Statement**	**Negative Statement**
Strongly agree	4 points	1 point
Agree	3 points	2 points
Disagree	2 points	3 points
Strongly disagree	1 point	4 points

The interpretation of the levels of mental health was measured based on interpretation criteria of the American Psychiatric Association [159] as explained below.

Score less than 32 points	means	have had mental health problems
Score intervals 32–44 points	means	have not had mental health problems

3.2.2 A record form was used to record personal data of children with delayed development such as syndrome group, type of delayed development and results of the sensation test were recorded from the OPD card.

3.3 Instrument Quality Control

In this study, the researcher verified the instruments' quality by assessing content validity and reliability.

3.3.1 Content validity

All of the research instruments were submitted to the thesis advisory committee and three experts considered how to improve content validity, correctness, coverage, clearness of the question and appropriateness of the language used. Then the researcher improved it following the recommendations of the committee and experts before pilot testing.

3.3.2 Reliability

The researcher took the improved research instruments to pilot test on 30 mothers of delayed development children that shared similar characteristics with the study samples. Then Cronbach's Alpha Coefficient was used to assess the reliability of instruments as shown below.

1) The Cronbach's Alpha Coefficient value of child's adaptive developmental quotient scale was 0.96.

2) The Cronbach's Alpha Coefficient value of family member involvement scale was 0.81.

3) The Cronbach's Alpha Coefficient value of parenting competence scale was 0.76.

4) The Cronbach's Alpha Coefficient value of family impact scale was 0.78.

5) The Cronbach's Alpha Coefficient value of family relationship scale was 0.80.

6) The Cronbach's Alpha Coefficient value of the social support scale was 0.81.

7) The Cronbach's Alpha Coefficient value of mental health screening scale was 0.85.

After the pilot test of the instruments for reliability analysis, the researcher revised and returned it to the experts to verify or recommend improvement. Then it was revised again before used to collect data in the study setting.

3.4 Procedure of Data Collection

In this study, the study information was collected by the researcher as shown below.

3.4.1 The researcher contacted the Faculty of Graduate Studies, Mahidol University to ask for a letter introducing the researcher. Upon receiving the letter, it

was sent to the directors of hospitals and the Ethical Review Committee of each hospital to seek permission to conduct the study and collect data.

3.4.2 When permission was granted, the researcher asked to meet the heads and staff of the development stimulation clinics to elucidate details of data collection procedures and to coordinate with the samples. The time–table of services provided of each hospital is shown below (Table 3.1).

Table 3.1 Time–table of services provided for child development stimulation clinics in hospitals of three provinces in the southern region: Surat Thani, Nakhon Si Thammarat and Songkhla

Hospitals	Day	Time	Place / Building
Surat Thani	Friday	08.00 a.m.–12.00 a.m.	Rehabilitation Medicine Unit, Rajatham Bldg.
Suansaranrom Psychiatric	Monday–Friday	09.00 a.m.–15.30 p.m.	Child and Adolescent Psychiatry Clinic
Chawang Crown Prince	Monday–Friday	08.30 a.m.–16.00 p.m.	Health Promotion Bldg.
Maharaj Nakhon Si Thammarat	Monday–Friday	08.30 a.m.–16.30 p.m.	Child Development Stimulation Clinic
Hatyai	Monday–Friday	08.30 a.m.–16.30 p.m.	Rehabilitation Medicine Unit

Table 3.1 Time–table of services provided for child development stimulation clinics in hospitals of three provinces in the southern region: Surat Thani, Nakhon Si Thammarat and Songkhla (cont.)

Hospitals	Day	Time	Place / Building
Songkhla	Monday–Friday	08.00 a.m.–16.30 p.m.	Occupational Therapy Unit, Child and Adolescent Psychiatry Clinic
	Saturday	08.00 a.m.–12.00 a.m.	
	Extended Service Clinic	16.00 p.m.–20.00 p.m.	
Songkhla Rajanagarindra Psychiatric	Monday–Friday	08.30 a.m.–16.30 p.m.	Child and Adolescent Psychiatry Clinic
Songkhlanagarindra	Tuesday	09.00 a.m.–12.00 a.m.	Child Development Clinic
	Thursday	09.00 a.m.–17.00 p.m.	

3.4.3 Before collecting data, the researcher informed subjects of the objectives, the use of the study, the rights of the participants, the undesirable outcomes that might result from the study. The researcher answered any questions and noted any suspicions of the subjects who were willing to participate and collected signed informed consent forms. Then the subjects were explained the details of the questions and the answers as well. The study used questionnaires and record forms for data collecting.

3.4.4 After the subjects answered completely, the researcher verified the correctness and completeness of the questionnaires.

3.4.5 The researcher recorded personal data of children with delayed development from OPD cards. Then data was analyzed using statistics.

3.5 Data Analysis and Statistics

When data was collected completely to determine desirable sample size, the researcher verified the correctness and completeness of the questionnaires again and scored follow the stated condition. Then data was classified in groups, coded and analyzed using the statistical software (SPSS version 18) according to the objectives and hypotheses of the study.

3.5.1 Descriptive statistics

Descriptive statistics were used to describe the general characteristics of the subjects and was presented in tabulated form.

1) Frequency and percentage was employed to describe categories data, i.e., residence province, residence area, religion, marital status, occupation, personal disease, educational level, type of family, travelling convenience to hospital, child's sex, child birth order, child's chronically ills, developmental delay, syndrome group of a child, type of delayed development and results of the sensation test.

2) Mean, standard deviation, maximum–minimum or median and interquatile range was used to describe continuous data, i.e., mothers' age, average household income, duration of care, number of children, number of delayed development children, child's age, aged when delay appeared, child's adaptive developmental quotient, family member involvement, parenting competence, family impact, family relationship, social support and mental health.

3.5.2 Inferential statistics

1) Bivariate analysis by using Chi–square test and/or Fisher's exact test were used to test the association among mothers' personal–social factors, child's personal factors and environmental factors and mental health problems of

mothers of delayed development children. The values of crude odds ratio, 95% confidence interval and a p–value was used to analyze each time variable.

2) Multivariate analysis was used to estimate the magnitude of associations. Variables with a p–value <0.05 in the initial model were considered as the body of knowledge from literature review and the results of bivariate analysis. Then the factors associated with the dependent variables were retained. Unconditional logistics regression was used to analyze the most influential model that could predict mental health problems among mothers of delayed development children. The values of adjusted odds ratio, 95% confidence interval and a p–value were determined.

3) The critical significant level was set at 0.05.

3.6 Ethics Approval

3.6.1 The researcher submitted a detailed document of the study and research instruments to the Ethics Review Committee for Research in Human Subjects of Siriraj Institutional Review Board. The certificate of approval no Si569/2013 (Appendix C)

3.6.2 The researcher submitted a letter to the Faculty of Graduate Studies, Mahidol University, to ask permission for data collecting. When that letter was obtained, it was sent to the provincial chief medical officer and the directors of hospitals that provided services in the development stimulation clinics. The aim was clarified the objectives of the study and ask for approval and kindness for collecting data. After permission was granted, collecting data started.

3.6.3 The researcher explained the ethics approval in the front page of the questionnaire. Then the researcher was introduced to the participants, told about the objectives for answering questionnaires, explained clearly in detail and informed about use of information in this study. The researcher provided an opportunity for the participants to question any suspicions for decision making to participate. Data was

collected from willing subjects who signed written informed consent forms. The subjects withdraw from the study any time without any effect.

3.6.4 The information gained was kept confidential and safe.

3.6.5 The data was analyzed for overall for academic reasons only, confidentiality of the subjects was maintained and individual information was not presented.

CHAPTER IV
RESULTS

The unmatched case–control study was conducted to determine the factors associated with mental health problems of mothers of delayed development children in hospitals of three provinces in the southern region: Surat Thani, Nakhon Si Thammarat and Songkhla from October 2013 to March 2014. Data were collected from 210 subjects who were screened mental health, 70 identified in the case and 140 in the control groups using self–administered questionnaires and record forms. The results were presented in three parts as described below.

4.1 General Characteristics of the Subjects

4.1.1 Mothers' personal–social factors

4.1.2 Child's personal factors

4.1.3 Environmental factors

4.2 Univariate Analysis

4.3 Multiple Logistic Regression Analysis

4.1 General Characteristics of the Subjects

4.1.1 Mothers' personal–social factors

As shown in Table 4.1, the median age of 210 mothers of children with delayed development was 35.0 (Min=19, Max=47) years old in the cases group and 34.0 (Min=18, Max=47) years old in the controls group. Approximately 90.0% of both groups were Buddhist and married. About one–fourth of cases and controls were unemployed or housewife and mostly (92.9%) without personal disease. Personal disease reported included allergic rhinitis, hypothyroidism, epilepsy, DM etc. As for educational level, 28.6% of the case group attained high school while the control group subjects were mostly (42.1%) bachelor degree level and higher.

Of the majority of mothers in both the case and control groups provided care for their child for 12 months and more over (88.6% and 92.1% respectively) and most had two children (44.8%). Case and control groups mostly (97.1%) had one child with delayed development and were a nuclear/elementary family type (60.0% and 57.6% respectively). The median average household income in the case group was 14,000 baht per month and in the control group was 20,000 baht per month.

Tables F1 (Appendix F) show percentage of each item of parenting competence scale among mothers of delayed development children. In the case group, 75.7% agreed with "caring for this child was difficult and complex" and 64.3% disagreed with "you have adequate confidence and readiness to take care of your delayed development child". In the control group, 72.9% strongly agreed with "even though you knew that your child had delayed development and needed special care, you are willing to care for them to your best ability", and 70.0% strongly disagreed with "when you met and consulted with experts or health staff, you were more confident".

The median score of parenting competence was 22.0 points (Min=17, Max=30) in the case group and 28.0 points (Min=18, Max=36) in the control group. Both case and control groups demonstrated moderate levels of parenting competence (50.0% and 55.0% respectively) Table 4.1.

Table 4.1 Mother's personal–social factors among case and control

Variables	Cases (n=70)		Controls (n=140)		p–value
	Number	%	Number	%	
Age (Years)					
<25	14	20.0	15	10.7	0.068[a]
25–34	20	28.6	59	42.1	
>34	36	51.4	66	47.2	
Mean (SD)	33.3 (7.3)		34.1 (6.4)		
Median (Min–Max)	35.0 (19–47)		34.0 (18–47)		
Religion					
Buddhism	62	88.6	123	87.9	1.000[b]
Islam	8	11.4	17	12.1	
Marital status					
Married	64	91.4	127	90.7	1.000[b]
Widowed/Divorced/ Separated	6	8.6	13	9.3	
Occupation					
Unemployed/Housewife	17	24.3	38	27.1	0.156[a]
Agriculturist	18	25.7	25	17.9	
Civil servant	1	1.4	13	9.3	
State enterprise	4	5.7	8	5.7	
Laborer	16	22.9	21	15.0	
Vendors/Personal business	14	20.0	35	25.0	
Personal disease					
No	64	91.4	131	93.6	0.579[b]
Yes	6	8.6	9	6.4	

[a] *Pearson Chi–Square Test,* [b] *Fisher's Exact Test*

Table 4.1 Mother's personal–social factors among case and control (cont.)

Variables	Cases (n=70)		Controls (n=140)		p–value
	Number	%	Number	%	
Educational level					
Primary school	14	20.0	18	12.9	0.014[a]
Secondary school	15	21.4	18	12.9	
High school	20	28.6	26	18.5	
Diploma	6	8.6	19	13.6	
Bachelor and higher	15	21.4	59	42.1	
Duration of care (months)					
<12	8	11.4	11	7.9	0.447[b]
≥12	62	88.6	129	92.1	
Mean (SD)	45.6 (42.1)		39.8 (19.0)		
Median (Min–Max)	39.5 (6–284)		41.5 (6–114)		
Number of children					
1	28	40.0	48	34.3	0.703[a]
2	30	42.9	64	45.7	
>2	12	17.1	28	20.0	
Mean (SD)	1.8 (0.9)		1.9 (1.1)		
Median (Min–Max)	2 (1–4)		2 (1–8)		
Number of delayed development children					
1	67	95.7	137	97.9	0.403[b]
>1	3	4.3	3	2.1	
Mean (SD)	1.0 (0.2)		1.0 0.1)		
Median (Min–Max)	1 (1–2)		1 (1–2)		

[a] *Pearson Chi–Square Test,* [b] *Fisher's Exact Test*

Table 4.1 Mother's personal–social factors among case and control (cont.)

Variables	Cases (n=70)		Controls (n=140)		p–value
	Number	%	Number	%	
Family type					
Nuclear/Elementary	42	60.0	79	57.6	0.884[a]
Extended/Joint	24	34.3	52	36.2	
Single parent	4	5.7	9	6.2	
Average household income per month (Baht)					
<27,000	55	78.6	87	62.1	0.019[b]
≥27,000	15	21.4	53	37.9	
Mean (SD)	19045.7 (16144.9)		26,910.7 (23,918.8)		
Median (Min–Max)	14,000 (3,000–100,000)		20,000 (2,000–150,000)		
Parenting competence level					
Low	34	48.6	11	7.9	<0.001[a]
Moderate	35	50.0	77	55.0	
High	1	1.4	52	37.1	
Mean (SD)	21.6 (3.3)		27.8 (3.9)		
Median (Min–Max)	22.0 (17–30)		28.0 (18–36)		

[a] *Pearson Chi–Square Test,* [b] *Fisher's Exact Test*

4.1.2 Child's personal factors

The majority of children with delayed development in both case and control groups were male (57.1% and 66.4% respectively) and age ranged from 6 to 60 months. The median age was 38.5 months (Min=6, Max=60) in the case group and 40.0 months (Min=6, Max=60) in the control group. Approximately 60.0% of the children in both groups were preschool age (aged 3 to 5 years). The children mainly

were the youngest child 48.6% in the case group and 51.4% in the control group. Of these children, majority of syndromes were autistic spectrum disorder (24.3%), cerebral palsy (23.3%), speech delay (18.1%), Down's syndrome (17.6%), global delay development (11.9%) and 5.8% for others, (i.e., motor delay, neuromuscular disease and inborn errors of metabolism).

Of all children, 96.2% had delayed development in language and communication skills followed by social and self–help skills (71.9%), gross motor and balance skills (60.5%) and fine motor adaptive and solving problem skills (59.0%). For the child's adaptive developmental quotient, the median score was 38.0 points (Min=0, Max=100) in the case group and 53.0 points (Min=0, Max=100) in the control group, and both groups mostly had severely delayed development (81.4% in the case and 75.0% in the control groups). Regarding the results of the sensation test, 81.9% of all children received the sensation test, whereas 97.1% of the hearing test and 93.6% of the visual test as a normal group (Table 4.2).

Table 4.2 Child's personal factors among case and control

Variables	Cases (n=70)		Controls (n=140)		p–value
	Number	%	Number	%	
Sex					
Male	40	57.1	93	66.4	0.225[b]
Female	30	42.9	47	33.6	
Age					
Infant (underage 1 year)	8	11.4	11	7.8	0.656[a]
Toddler (aged 1–3 years)	21	30.0	47	33.6	
Preschool (aged 3–5 years)	41	58.6	82	58.6	
Mean (SD)	38.0 (18.0)		38.6 (17.7)		
Median (Min–Max)	38.5 (6–60)		40.0 (6–60)		

[a] *Pearson Chi–Square Test,* [b] *Fisher's Exact Test*

Table 4.2 Child's personal factors among case and control (cont.)

Variables	Cases (n=70)		Controls (n=140)		p–value
	Number	%	Number	%	
Child's birth order					
First child	34	48.6	63	45.0	0.871[a]
Youngest child	34	48.6	72	51.4	
Other	2	2.8	5	3.6	
Mean (SD)	1.7 (0.9)		1.8 (1.1)		
Median (Min–Max)	2.0 (1–4)		2.0 (1–8)		
Syndrome group					
Down's Syndrome					
Yes	13	18.6	24	17.1	0.848[b]
No	57	81.4	116	82.9	
Autistic Spectrum Disorder					
Yes	18	25.7	35	25.0	1.000[b]
No	52	74.3	105	75.0	
Cerebral Palsy					
Yes	15	21.4	31	22.1	1.000[b]
No	55	78.6	109	77.9	
Global Delayed Development					
Yes	10	14.3	9	6.4	0.075[b]
No	60	85.7	131	93.6	
Speech Delay					
Yes	10	14.3	28	20.0	0.347[b]
No	60	85.7	112	80.0	

[a] *Pearson Chi–Square Test,* [b] *Fisher's Exact Test*

Table 4.2 Child's personal factors among case and control (cont.)

Variables	Cases (n=70)		Controls (n=140)		p–value
	Number	%	Number	%	
Inborn Errors of Metabolism					
Yes	1	1.4	1	0.7	1.000[b]
No	69	98.6	139	99.3	
Motor Delay					
Yes	1	1.4	6	4.3	0.428[b]
No	69	98.6	134	95.7	
Neuromuscular Disease					
Yes	2	2.9	6	4.3	0.722[b]
No	68	97.1	134	95.7	
Type of delayed development					
Gross motor and balance skills					
Delayed	48	68.6	79	56.4	0.101[b]
Normal	22	31.4	61	43.6	
Fine motor adaptive and solving problem skills					
Delayed	48	68.6	76	54.3	0.054[b]
Normal	22	31.4	64	45.7	
Language and communication skills					
Delayed	69	98.6	133	95.0	0.274[b]
Normal	1	1.4	7	5.0	

[a] *Pearson Chi–Square Test,* [b] *Fisher's Exact Test*

Table 4.2 Child's personal factors among case and control (cont.)

Variables	Cases (n=70)		Controls (n=140)		p–value
	Number	%	Number	%	
Social and self–help skills					
Delayed	57	81.4	94	67.1	0.034[b]
Normal	13	18.6	46	32.9	
Child's adaptive developmental quotient					
Severe delay	57	81.4	105	75.0	0.281[a]
Mild to moderate delay	9	12.9	17	12.1	
Normal development	4	5.7	18	12.9	
Mean (SD)	40.3 (27.6)		50.9 (26.6)		
Median (Min–Max)	38.0 (0–100)		53.0 (0–100)		
Results of sensation test (n=172)					
Hearing test					
Abnormal	2	3.4	3	2.6	1.000[b]
Normal	56	96.6	111	97.4	
Visual test					
Abnormal	6	10.3	5	4.4	0.186[b]
Normal	52	89.7	109	95.6	

[a] *Pearson Chi–Square Test,* [b] *Fisher's Exact Test*

4.1.3 Environmental factors

About 62.0% of mothers in both case and control groups lived outside the municipal area (Table 4.3).

Table F2 to F5 (Appendix F) show percentage of each item of family member involvement, family impact, family relationship, and social support among

mothers of delayed development children as explained below. For family members' involvement, in the case group, about 63.0% responded regularly with "when you take the child to the hospital, other members will facilitate you" and an equal number (58.6%) sometimes agreed with "family members assisted the child for their daily living activity such as putting to bed, bathing, dressing or feeding" and "family members helped you do whatever house–work related to child care". In the control group, about 88.0% responded negatively to "it seems that family members are not paying attention to caring for a child" and 77.8% responded regularly with "when you take the child to the hospital, other members will facilitate you".

The median score of family member involvement was 12.0 points (Min=1, Max=19) in the case group and 15.0 points (Min=2, Max=20) in the control group. Nearly half (48.6%) of the case group had low levels of family member involvement, while 42.9% of the control group had high levels.

Regarding the family impact of child care, both case and control groups were similar (82.9% and 92.9% respectively), responding negatively to "raising this child has pushed you and your partner further apart". About 63.0% of the case group sometimes agreed with "you and your partner disagree more about how to raise this child" and about 81.0% of the control group responded negatively to "when asked about this child, you and your family feel embarrassed".

The median score of family impact in the case group was 33.5 points (Min=15, Max=45) and was 43.0 points (Min=21, Max=48) in the control group. Half (50.0%) of the case group had high levels of family impact, while 55.0% of the control group had moderate levels.

Regarding family relationship in the case group, 68.6% agreed with "family members help you do house–work and raise the child" and both case and control groups similarly agreed with "when differing opinions are given to raise this child, usually the reason is agreed upon" (67.1% and 60.7% respectively). In the control group, most (72.1%) strongly disagreed with "family members have quarreled or used bodily harm, in the past year".

Median score of family relationship was 27.5 points (Min=17, Max=37) in the case group and was 33.0 points (Min=17, Max=40) in the control group. More than

half (55.7%), of the case group had poor levels of family relationship and 60.7% of the control group had moderate levels.

Regarding social support, in the case group mostly (68.6%) agreed with "you have a close person who makes you feel relieved and supported". Both case and control groups strongly agreed with "you were facilitated and received attentiveness from health staff when your child received medical services at the hospital" (60.0% and 72.9%, respectively). For the control group, 63.6% disagreed with "you could not ask for help from any person when in trouble to raise the child".

In the case group, median score of social support was 29.0 points (Min=20, Max=37) and was 33.0 points (Min=21, Max=40) in the control group. The majority (61.4%) of the case group had low levels of social support while nearly half (49.3%) of the control group had moderate levels.

Table 4.3 Environmental factors among case and control

Variables	Cases (n=70)		Controls (n=140)		p–value
	Number	%	Number	%	
Residence area					
Municipal area	25	35.7	54	38.6	0.763[b]
Outside municipal area	45	64.3	86	61.4	
Family member involvement level					
Low	34	48.6	29	20.7	<0.001[a]
Moderate	22	31.4	51	36.4	
High	14	20.0	60	42.9	
Mean (SD)	11.7 (4.4)		14.3 (3.6)		
Median (Max–Min)	12.0 (1–19)		15.0 (2–20)		

[a] *Pearson Chi–Square Test,* [b] *Fisher's Exact Test*

Table 4.3 Environmental factors among case and control (cont.)

Variables	Cases (n=70)		Controls (n=140)		p–value
	Number	%	Number	%	
Family impact level					
High	35	50.0	15	10.7	<0.001[a]
Moderate	33	47.1	77	55.0	
Low	2	2.9	48	34.3	
Mean (SD)	33.5 (5.9)		41.4 (5.3)		
Median (Min–Max)	33.5 (15–45)		43.0 (21–48)		
Family relationship level					
Poor	39	55.7	14	10.0	<0.001[a]
Fair	29	41.4	85	60.7	
Good	2	2.9	41	29.3	
Mean (SD)	27.0 (4.5)		32.9 (4.5)		
Median (Min–Max)	27.5 (17–37)		33.0 (17–40)		
Social support level					
Low	43	61.5	20	14.3	<0.001[a]
Moderate	26	37.1	69	49.3	
High	1	1.4	51	36.4	
Mean (SD)	28.5 (3.3)		32.8 (3.9)		
Median (Min–Max)	29.0 (20–37)		33.0 (21–40)		

[a] *Pearson Chi–Square Test,* [b] *Fisher's Exact Test*

4.2 Univariate Analysis

Table 4.4 shows the univariate analysis of the associations among mother's personal–social factors, child's personal factors and environmental factors and mother's mental health problems. For mother's personal–social factors, mothers

with an educational level of below high school and high school were more likely to have mental health problems compared with those mothers who had bachelor degree and higher (OR=3.2, 95%CI=1.5–6.7, and OR=3.0, 95%CI=1.3–6.8 respectively), while the diploma level group had no association. According to average household income per month, mothers who had incomes less than 27,000 baht per month had more likely to have mental health problems, about 2.2 times, compared with those who had ≥27,000 baht per month (OR=2.2, 95%CI=1.1–4.2). Moreover, mothers who had low levels of parenting competence had significantly more likely to have mental health problems about 11.1 times compared with mothers who had moderate to high levels (OR=11.1, 95%CI=5.1–24.0).

Regarding child's personal factors, mothers of children with social and self–help skills delayed had more likely to have mental health problems compared with mothers of children who did not have (OR=2.2, 95%CI= 1.1–4.3).

Considering environmental factors, mothers who had low levels of family member involvement had more likely to have mental health problems, about 3.6 times compared with those who had moderate to high levels (OR=3.6, 95%CI=1.9–6.7). Mothers who had high levels of family impact had more likely to have mental health problems, about 8.3 times compared with those who had moderate to high levels (OR=8.3, 95%CI=4.1–16.9). According to family relationship, mothers who had poor levels had significantly more likely to have mental health problems 11.3 times compared with mothers who had fair to good levels (OR=11.3, 95%CI=5.5–23.4). Regarding social support, mothers who had low levels of social support had significantly more likely to have mental health problems, about 9.6 times compared with those mothers who had moderate to high levels (OR=9.6, 95%CI=4.9–18.8).

Table 4.4 Associations between mother's personal–social factors, child's personal factors and environmental factors and maternal mental health problems

Variables	Cases(n=70)		Controls(n=140)		Crude OR	95%CI
	Number	%	Number	%		
Educational level						
Below high school	29	41.4	36	25.7	3.2†	1.5–6.7
High school	20	28.6	26	18.6	3.0†	1.3–6.8
Diploma	6	8.6	19	13.6	1.2	0.4–3.7
Bachelor and higher	15	21.4	59	42.1	1	
Average household income per month (Baht)						
<27,000	55	78.6	87	62.1	2.2*	1.1–4.2
≥27,000	15	21.4	53	37.9	1	
Parenting competence level						
Low	34	48.6	11	7.9	11.1‡	5.1–24.0
Moderate/High	36	51.4	129	92.1	1	
Type of delayed development						
Social and self–help skills						
Delay	57	81.4	94	67.1	2.2*	1.1–4.3
Normal	13	18.6	46	32.9	1	

* *p <0.05,* † *p <0.01,* ‡ *p <0.001*

Table 4.4 Associations between mother's personal–social factors, child's personal factors and environmental factors and maternal mental health problems (cont.)

Variables	Cases (n=70)		Controls (n=140)		Crude OR	95%CI
	Number	%	Number	%		
Family member involvement level						
Low	34	48.6	29	20.7	3.6‡	1.9–6.7
Moderate/High	36	51.4	111	79.3	1	
Family impact level						
High	35	50.0	15	10.7	8.3‡	4.1–16.9
Moderate/Low	35	50.0	125	89.3	1	
Family relationship level						
Poor	39	55.7	14	10.0	11.3‡	5.5–23.4
Fair/Good	31	44.3	126	90.0	1	
Social support level						
Low	43	61.4	20	14.3	9.6‡	4.9–18.8
Moderate/High	27	38.6	120	85.7	1	

* *p <0.05,* † *p <0.01,* ‡ *p <0.001*

4.3 Multiple Logistic Regression Analysis

For multivariate logistic regression analysis, variables with a p–value <0.05 were retained. Significant variables were educational level, average household income, parenting competence level, type of delayed development (social and self–help skills), family member involvement level, family impact level, family relationship level and

social support level included in the multivariate model using an enter procedure. Adjusted odds ratios and 95% confidence intervals were also calculated.

Detection for multicollinearity and interaction of variables were performed before entering all variables in the model and there were no multicollinearity and interaction among the independent variables.

When adjusted for other covariate factors, the variables that showed significant odds of maternal mental health problems were mothers who had low levels of parenting competence, 4.2 times compared with those mothers who had moderate to high levels (OR=4.2, 95% CI=1.3–14.1) as well as mothers who had low levels of social support, 3.4 times compared with those mothers who had moderate to high levels (OR=3.4, 95% CI=1.5–7.9).

Regarding the other variables, i.e., educational level, average household income, children with social and self–help skills delayed, family member involvement level, family impact level and family relationship level did not demonstrate significant odds to maternal mental health problems (Table 4.5).

Table 4.5 Associations between the selected mother's personal–social factors, child's personal factors and environmental factors and maternal mental health problems

Variables	Crude OR	95%CI	Adjusted OR	95%CI
Educational level				
Below high school	3.2	1.5–6.7	1.6	0.6–4.3
High school	3.0	1.3–6.9	2.6	0.9–7.6
Diploma	1.2	0.4–3.7	0.9	0.3–3.5
Bachelor and higher	1		1	

* *p <0.05,* † *p <0.01*

Table 4.5 Associations between the selected mother's personal–social factors, child's personal factors and environmental factors and maternal mental health problems (cont.)

Variables	Crude OR	95%CI	Adjusted OR	95%CI
Average household income per month (baht)				
<27,000	2.2	1.1–4.2	0.7	0.3–1.7
≥27,000	1		1	
Parenting competence level				
Low	11.1	5.1–24.0	4.2*	1.3–14.1
Moderate/High	1		1	
Type of delayed development				
Social and self–help skills				
Delay	2.2	1.1–4.3	2.0	0.8–4.9
Normal	1		1	
Family member involvement level				
Low	3.6	1.9–6.7	1.6	0.6–4.1
Moderate/High	1		1	
Family impact level				
High	8.3	4.1–16.9	0.9	0.3–3.4
Moderate/Low	1		1	

* *p <0.05,* † *p <0.01*

Table 4.5 Associations between the selected mother's personal–social factors, child's personal factors and environmental factors and maternal mental health problems (cont.)

Variables	Crude OR	95%CI	Adjusted OR	95%CI
Family relationship level				
Poor	11.3	5.5–23.4	2.4	0.7–8.5
Fair/Good	1		1	
Social support level				
Low	9.6	4.9–18.8	3.4†	1.5–7.9
Moderate/High	1		1	

* *p <0.05*, † *p <0.01*

CHAPTER V
DISCUSSION

The discussion on the study of factors associated with mental health problems of mothers of delayed development children in hospitals in the southern region is divided into two parts, as shown below.

5.1 Discussion of the research results

5.2 Discussion of the research method

5.1 Discussion of the research results

5.1.1 Mother's personal–social factors

Of the mother's personal–social factors, only parenting competence was significant associated with maternal mental health problems.

1) Parenting competence

This study's results demonstrated a strong significant association between parenting competence and maternal mental health problems. Mothers with low levels of parenting competence were found to be 4.2 times at increased odds of maternal mental health problems (OR=4.2, 95%CI=1.3–14.1), compared with those mothers at moderate to high levels. When mothers feel confident in their parenting role, they are likely to use more effective practices in caring for their child. Parenting competence appears as a protective factor that mediates the effects of stress or adversity in disadvantaged circumstances [138].

For mothers of delayed development children, in the beginning at birth, these mothers were facing with a child who was different from their expectation [44]. These mothers reported feeling more guilty, found to be 2.6 times (OR=2.6,

95%CI=1.1–6.4) and had been accused of having a child with disability, found to be 5.8 times (OR=5.8, 95%CI=0.7–51.1) [38]. Possible explanations are these mothers have a knowledge deficit about the syndrome [28, 39]. All of these mothers needed months and some even years to accept the fact that they did have a child with delayed developmentally and that they faced a lot of stress. The condition and the crisis that occurred were very hard to be prevented. These mothers reported a loss of parenting competence and efficacy [43]. Consistent with the results of this study, about two–third of the case group responded that they had no confidence and readiness to take care their delayed development children. As a result, they often experienced greater mental health problems and also incompetence in the maternal parenting role. According to a population–based study of Montes G and Halterman JS [22] those mothers reported that their child was harder to care for than most children, found to be 7.6 times (OR=7.6, 95%CI=4.5–12.8). Likewise the results of this study demonstrated that approximately 90.0% of the case group reported that it was difficult and complex to care for their child and 80.0% of these mothers also reported that they could not manage any problems in child care.

Feelings of unconfident or incompetence in the maternal role predicted of mental health problems. Lower levels of parenting competence have been found to be associated with higher levels of mental health problems. Perceptions of own competence may be especially vulnerable in parents to caring for children with complicate conditions [135–139]. In this study, most (84.2%) of the case group study responded that they did not know how the right way to take care for their delayed development children. If mothers are unable to respond and to appropriately give care, they will develop negative feelings about their maternal parenting role [29]. The results of this study showed that about two–third of cases had thought that they could not care for their child as well as them should and about 70.0% of them also felt discouraged and hopeless to care for their child in their development milestone. Furthermore, most (94.3%) of the case group responded that caring for the delayed development child makes them tense and anxious. As a result they may require greater support and service provision to enhance behavior management skills [135].

While greater parenting competence has been associated with increased satisfaction with the maternal role, belief in their ability that decreases negative

emotions; they can use more strategies to decrease maternal mental health problems [50, 29, 28]. Furthermore, mothers' confidence can be increased by previous experience with their child, having positive attitudes and training skills necessary for parenting, thus increasing their knowledge and adaptation to the maternal role [29, 134]. In addition, these mothers would be more of confidence and competence to care for their delayed development children if they received consultation with experts or health staff.

2) Age

The findings of this study pointed out that mothers' age was not associated with maternal mental health problems. Much previous research [27–30, 110–115, 68, 32, 44, 67, 42, 40, 52, 19] reported similar results.

Few studies [23, 24, 109] demonstrated converse results; mothers below the age of 30 had greater risk of maternal mental health problems. This may have to do with the fact that younger mothers have relatively little experience in their roles as parents; these mothers may be lack confidence.

3) Religion

This study's finding indicated that religion was not association with maternal mental health problems. Past studies also reported that mothers of children with delayed development, who differed in religious belief, had no different mental health status [19, 42, 25]. While interviewing, these mothers respond that when dealing with problems, they used religious coping as the coping style besides acceptance and optimism. In addition, they accepted their children as things that God has given or part of their fate.

Little evidences in the literature supports religious belief as a resource for coping, and those positive belief systems were associated with low maternal mental health problems [116, 117].

4) Marital status

The results of this study showed that marital status was not significantly associated with maternal mental health problems. Consistent with much

previous research, no association was reported between marital status and maternal mental health problems [119, 25, 109, 110, 28, 38, 112–114, 42, 40, 44, 120, 9]. This is consistent with both a meta–analysis by Theule J [89] and a longitudinal study by Neece C and Baker B [111] contributed similar findings.

This is in contrast to the findings of Kersh J et al. [118] who revealed that greater marital life quality predicted lower maternal mental health problems, by the assistance from a spouse will lighten the load and feeling secure in their married life increased feelings of capability to caring for their child. McCarthy A et al. [8] noted that marital status was the strongest predictor of maternal mental health problems.

5) Occupation

The present study revealed that occupation was not associated with maternal mental health problems. Much previous research confirmed similar results [122, 42, 44, 118–120, 110–112, 9, 7, 27, 38].

On the contrary, a population–based study of Laurvick CL et al. [40] showed an association between occupational and maternal mental health. A study conducted by Thurston S et al. [114] found that unemployed mothers had a significant association, up to 3.4 times greater odds of maternal mental health problems (OR=3.4, 95%CI=1.6–7.5). Employment status is linked to their household income, accessing medical services or common welfare. On the other hand, the complexity and difficulty of caring for this child required times to adapt and may be affected their occupation.

6) Personal disease

This study found no significant association between personal disease and maternal mental health problems. Consistent with previous studies [25, 29] and a longitudinal study by Neece C and Baker B [111] mothers having a disease showed were not related to maternal mental health problems.

On the contrary, a study conducted by Tsai SM and Wang HH [42] indicated that when the health status of mother was worse, her stress was much higher.

7) Educational level

The study findings showed that educational level of these mothers showed no significant odds of maternal mental health problems. Previous research [68, 124, 112, 32, 23, 67, 44, 122, 19, 113, 9, 29, 27, 110, 109, 115, 125] supported this findings including: a longitudinal study of Neece C and Baker B [111] a cross–cultural study of McConkey R et al. [17] and population–based studies [40, 22].

Some studies showed significant association between educational level and maternal mental health problems. Larosa AC et al. [26] reported that mothers with less than high school education had 2.8 times increased significant risk of maternal stress (OR=2.8, 95%CI=2.0–4.1). Durmaz A et al. [38] reported that mothers with a below college level of education were found to be 2.4 times at higher risk of maternal stress (OR=2.4, 95%CI=1.0–5.5). This suggests that mothers with less education may have fewer strategies to manage the burdens of caring for their children [25]. Additionally, the studies by Baker BL et al. [119], Solem MB, Christophersen KA and Martinussen M [120], Howe TH, Sheu CF and Hsu YW [123] reported that mothers with less education were poorer and, thus, they may have had fewer strategies to cope with caring for their delayed development children.

8) Duration of care

This study reported that duration of care for children with delayed development was not associated with maternal mental health problems. A previous study has found similar results [23].

In turn, Tsai SM and Wang HH [42] discovered that the amount of time as a caregiver was significantly correlated to the mother's strain. A high level of long–term care for a child with severe developmental delays can be burdens and may result in mental health problems. A previous research showed similarly that the longer the disabled child was cared for, the greater the level of maternal stress, although everyone experiences some degree of stress in their lives [132, 125].

9) Family type

The results of the study discovered that family type was not significantly associated with maternal mental health problems. The longitudinal study

by Donenberg G and Baker BL [52] reported that single parents did not differ in mental health status from others. A few studies have also supported these results [120, 30, 67, 7, 36].

However, little research has reported opposite results: Emerson E [127] contributed that single mothers had 1.3 times increased risk of mental health problems. Single mothers of delayed developmental children were found to be more vulnerable to the high levels of stress. A cross–cultural study by McConkey R et al. [17] also found that single mothers had poorer maternal mental health.

10) Average household income

This study reported that average household income was not associated with maternal mental health problems. The results of previous research supported this finding [32, 131, 118, 44, 67, 42, 130, 19, 113, 114, 28, 36]. Further, two longitudinal studies [52, 111] and two of population–based studies [22, 135] also contributed similar findings.

As has been shown previously, several studies explored the relationship between household income and maternal mental health problems [128, 112, 30, 129, 27, 122, 119, 110, 23, 124–126, 41] indicating that mothers with lower family incomes were at greater maternal stress and distress. The study of Durmaz A et al. [38] demonstrated that mothers with lower monthly incomes were found to be 10.4 times at higher risk than control group (OR=10.4, 95%CI=5.4–20.2). These mothers might have limited strategies available to cope with strain and thus feelings of pressure were greater [127, 115]. In some families, the birth of a disabled child may lead to loss of money and some mothers quit their jobs because of having too limited time. As a consequence, parents face some extra expenses such as medical intervention, hospital visits, care, medicine and different materials.

11) Number of children

The results of this study demonstrated that the number of children in the household was not significantly associated with maternal mental health problems. Consistent with many previous studies [113, 32, 30, 23, 44, 52, 42, 127, 119, 130, 19, 25, 38, 109, 115] the results indicated no significant relationship

between number of children and maternal mental health problems. In addition, a population–based study by Laurvick CL et al. [40] also showed similar results.

In contrast, the findings by Larosa AC et al. [26] reported that mothers having more than three children in the household had 2.3 times increased risk to maternal depression (OR=2.3, 95%CI=1.5–3.6). Furthermore, the results of a few studies showed similar findings [28, 133]. It could be that the burden of child raising is the responsibility of the mother alone.

12) Number of delayed development children

This study's finding revealed that the number of delayed development children in the household was not significantly associated with maternal mental health problems. Consistent with the results of a few studies, no significant correlation was observed between having another disabled child in the household and maternal stress [27, 28].

However, some studies indicated converse results. Witt WP et al. [67] conducted a population–based study and reported that mothers caring for multiple children with activity limitations had a 1.7 times higher risk of poor maternal mental health compared with mothers of children without limitations (OR=1.7, 95%CI=1.1–2.6) and they were likely to have particularly high levels of unmet service needs. The results of Abbeduto L et al. [122] and Bourke–Taylor H et al. [133] demonstrated similar findings.

5.1.2 Child's personal factors

All of the child's personal factors were not significantly associated with maternal mental health problems.

1) Sex

This study found that child's sex was not related to maternal mental health problems. Previous research [119, 9, 19, 17, 130, 131, 141–143, 11, 114, 31, 52, 122, 32, 25, 44, 110–112, 68, 27, 29, 115] also found no difference related to child's sex.

Some studies have indicated that child's sex was significantly related to maternal mental health problems. Emerson E [127] presented that mothers having male children were at increased risk as high as 2.9 times. Larosa AC et al. [26] also reported that boys increased risk to maternal mental health problems as high as 1.4 times compared with girls (OR=1.4, 95%CI=1.0–1.9). A meta–analysis by Theule J et al. [121] found that girls were associated with less stress in mothers. This may be related to the relatively greater severity of the disability in boys and the greater likelihood of boys to be adventurous and lively [23, 109, 127]. In Asian culture, boys are valued more than girls [39].

However, Shin JY et al. [124] revealed that mothers having girls increased the risk of mental health problems more than boys. It possibly be that mothers identified issues and anticipated some of the future problems of their daughters related to the safety, sexuality, pregnancy and menstrual issues, which would be difficult for these children to understand and to obtain education on and where to place her in the future [140].

2) Age

The results of this study demonstrated that child's age was not significantly associated with maternal mental health problems. This was similar to the result of two longitudinal studies [143, 52] and a population–based study [40] and other numerous studies [9, 114, 110, 27–29, 68, 36, 131, 142, 128, 112, 25, 120, 44, 42, 130, 122, 119, 19, 115, 123].

On the contrary, previous studies indicated that child's age has been an important factor in contributing to maternal mental health problems. A population–based study of Totsika V et al. [31] confirmed that child's age significantly increased the odds for maternal emotional disorders (OR=1.0, 95%CI=1.0–1.1). The mothers of these children in different age groups needed to face and cope with different problems [109]. Among mothers of younger children, they work harder to engage with their child and require time to learn to read their child's signals. These mothers reported more mental health problems when the child was younger [7, 32, 33].

Regarding mothers of older children, Emerson E [127] reported that the older child had a 1.2 times increased odds to maternal mental health problems.

Possibly the older children are physically larger and their externalizing behavior may be more difficult to manage [23, 140]. While the child is growing up, the mother must face and deal with numerous issues such as their children's future life in schools and possible employment [42]. Hence, the mothers of these children tended to develop mental health problems [30].

3) Child's birth order

In this study, child's birth order was not significantly related to maternal mental health problems. The results of previous cross–sectional studies [26, 27] demonstrated similar findings. A longitudinal study by Donenberg G and Baker BL [52] also contributed this finding.

One study showed converse results. A cohort study of Munk–Olsen T, Jones I and Laursen TM [144] confirmed that primiparous mothers had a 8.7 times higher risk of psychiatric disorders (RR=8.7, 95%CI=6.9–10.9). After the second birth, the risk was increased to 2.0 times (RR=2.0, 95%CI=1.5–2.7), and no increased risk was observed after the third birth. It may be possible that the effect of primiparity results from biological differences between first and subsequent children [144]. However, it may not be consistent with purely psychological explanations.

4) Syndrome group

This study results found no significant association between syndrome groups, (e.g., Down's syndrome, autistic spectrum disorder, cerebral palsy, global delayed development, speech delay, inborn errors of metabolism, motor delay, and neuromuscular disease) and maternal mental health problems. Findings of previous research [44, 131, 142, 14, 147] found that maternal stress did not differ significantly by syndrome group.

Some previous research has shown that children with autistic spectrum disorder (ASD) were at significantly increased risk of maternal stress. Totsika V et al. [31] showed that the mothers of children with ASD had a 1.8 times increased risk for maternal emotional disorder (OR=1.8, 95%CI=1.1–2.9). A population–based of Montes G and Halterman JS [22] showed that mothers of children with ASD were found to be 2.4 times at risk of poorer emotional health (OR=2.4, 95%CI=1.3–4.5).

Children with ASD more often display behavior problems. They exhibit very unusual language and communication patterns such as stereotyped speech, ritualistic behaviors, lower interpersonal responsiveness, and self–injury more than other forms of developmental disabilities. Such behaviors may pose difficulties for mothers when they spend time with their children in public places, especially when uninformed people may misunderstand or misinterpret the child's behaviors. As a result, characteristics of the ASD child behaviors may account for increased maternal mental health problems [110, 31, 121, 135, 133, 122, 145, 146, 141, 28]. A meta–analysis of Yirmiya N and Shaked M [37] also supported these findings. Moreover, children with global delayed development also exhibit highly visible of behavior problems similar to the ASD group. These behavior problems are one of the most significant contributors to the level of maternal stress [10].

5) Type of delayed development

The findings of this study demonstrated that type of delayed development was not significantly associated with maternal mental health problems. The results of previous research [11, 71] and a longitudinal study [143] also found no association between type of developmental delay and maternal stress.

A few studies have contributed that delayed developmental was significantly related to maternal stress. Two longitudinal studies [111, 35] and others [135, 125] confirmed that social and self–help skills are a significant predictor of maternal stress. One possible explanation is that the importance of social and self–help skills increase as children mature and their peer groups become more prominent. A European cross–sectional survey conducted by Parkes J et al. [9] reported that children with language and communication impairment had a 1.9 times increased risk for maternal stress (OR=1.9, 95%CI=1.2–3.0) and children with fine motor dysfunction had a 2.5 times significantly increased higher risk to maternal stress (OR=2.5, 95%CI=1.4–4.3). However, a child with gross motor dysfunction had a 1.7 times increased risk to maternal stress, but without significant association (OR=1.7, 95%CI=1.0–2.8). Children with motor delays are limited to mobile that are easier to control, and another possible explanation is that child behavior problems are more influential to maternal stress than these impairments of developmental area [10].

6) Child's adaptive developmental quotient

Findings of this study indicated that child's adaptive developmental quotient was not associated with maternal mental health problems. The results are consistent with previous research [145, 130, 19, 14, 109, 28] demonstrated similar results.

In contrast, some studies have indicated a significantly relationship between child's adaptive developmental quotient and maternal stress [42, 115, 41, 136–139, 34, 122, 125, 126, 32, 68, 23, 118, 36]. These studies proved that mothers of severely delayed development had a higher level of stress. A longitudinal study by Webster RI et al [35] found that mothers of children with moderate or severe delay had a 3.7 times increased significant risk of maternal stress (OR=3.7, 95%CI=1.1–2.0). Mothers of children with lower daily living skills may face increased maternal stress or distress. Namely, children with lower activity daily living skills need greater assistance with a range of basis activities, extra time and energy from their mothers than the other children [148]. According to this study, while interviewing mothers, they mostly responded that they needed a child to help their activities daily living as much as possible, to reducing caregivers' burden. In part of language and communication skills, they was accepted if their child unable to do.

7) Results of the sensation test

The results of this research showed that neither hearing nor visual test was associated with maternal mental health problems. A population–based cohort study by Bourke J et al [135] revealed that a child with ear problems was not related to maternal mental health.

In contrast, Parkes J et al. [9] found that a child with blindness or no useful vision had a 2.3 times increased risk of maternal stress, while the child who needed hearing aids had a 5.3 times risk of maternal stress (OR=2.3, 95%CI=1.2–4.3 and OR=5.3, 95%CI=1.9–14.6, respectively). These malfunctions are quite often found in combination with developmental disability.

5.1.3 Environmental factors

Of the environmental factors, only social support was significantly associated with maternal mental health problems.

1) Social support

This study showed significant association between social support and maternal mental health problems. Mothers of the delayed developmental child with a low level of social support had a 3.4 times increased odds to maternal mental health problems (OR=3.4, 95%CI=1.5–7.9) compared with mothers with moderate to high levels. The literature supports that social support is an important factor in moderating the impact of maternal parenting role [115, 41, 136, 110, 114, 129, 43, 25, 139].

Numerous studies for mothers of children with delayed developmental also suggest a relationship between social support and maternal mental health problems. The study from Lee MY et al. [23] indicated that lower levels of social support were associated with higher maternal stress as, social support can alleviate mothers' pressure. Moreover, social support could relieve depression and increase self–esteem, coping strategies, life satisfaction and also elevate psychological well–being of an individual [36, 42]. Each type of social support is extremely important to reduce and sustain the mother's mental state. Accessing emotional support; about 80.0% of case group responded that when they were sick or engaged, someone instead care for their child and they have a close person who makes them feel relieved and supported. Whilst, some mothers (41.5%) responded that when they had interpersonal conflict of raised their child, they unable to consulted with any person. Furthermore, approximately 94.0% of mothers reported that when they brought their child received medical services at the hospital, they were facilitated, received attentiveness, supported and confidence about attendance for their child from healthcare professionals. Professional counseling and support group participation can enable mothers to obtain more useful resources and also aid in adapting to stress. In fact, within the informal support area, the support from their partner is the most important support [41, 42, 156, 157, 124, 138]. Mothers experiencing the least stress were receiving the greatest support from their spouses or partners, so it has powerful

buffering effects [20]. Information support is also an important issue, the results of this study showed that these mothers lacked necessary information; about 44.0% of the case group responded that they could not ask for help from any person when in trouble of raise their child and only 37.2% of cases responded that they always gained of knowledge or information about delayed development children. As a result, these mothers lacked appropriate channels to access necessary services provided that were very important determinants for maternal coping with stressful situations [154, 156, 157, 138]. The results by a study of Howie–Davies R and McKenzie K [158] indicated that the more information and support mothers received, the lower their stress levels. For accessing tangible support; approximately 57.0% of the case group responded that they got help from friends, relatives or other sources when they had of financial problems, the proportion was quite low when compared to the control group (93.6%). In this case, local administration should be involved and play a role with medical personnel in providing care, assistance and support these mothers so that they received care continuously.

Furthermore, some mothers rated the usefulness of social supports as only sometimes helpful and/or some of these supports were inaccessible [128]. Research by McConkey R et al. [138] showed that services do not always address the needs of mothers and do not offer continual support or did not always fit their individual needs. These issues, therefore, may affect to their levels of stress.

2) Residence area

The findings of this study showed that residence area was not associated with maternal mental health problems. Approximately 95% responded that they had convenient to travel to hospital. Likewise, a European cross–sectional survey [9] found no statistically significant relationship between area of living and maternal stress. No matter whether the mothers lived in any areas, they could access conveniently to services provided. The study of Mobarak R et al. [30] also contributed this finding.

On the contrary, a study demonstrated significant association of residence area and maternal mental health status. Larosa AC et al. [26] revealed that mothers

who lived in urban residences had a 1.7 times increased risk to mental health problems (OR=1.70, 95% CI=1.20–2.29) which may be affected by other linked factors.

3) Family relationship

This study's finding demonstrated that family relationship had no statistically significant relation to maternal mental health problems. As shown in the past, a few studies contributed identical results [126, 153].

Some studies showed converse results [128, 155]. They noted that family relationship was significantly correlated with maternal stress. A population–based study of Emerson E [127] found that mothers having unhealthy family relationships were 2.3 times at increased odds of mental health problems. A plausible explanation is that poor family relationship has been found to be a good predictor of maternal mental health problems. According to the results of this study, more than half (55.7%) of the case group reported that their family members had no chance to do any activities together because of raised these child. In addition, about 64.0% of cases responded that they were not dare to or oppress to told or described to other members about the difficulty to raise this child.

Laurvick CL et al. [40] conducted a population–based study of physical and mental health of mothers caring for a child with Rett syndrome and found that the maternal mental health was positively associated with better family relationship, such that families who were doing well felt less stressed [41]. Further, the results of Thurston S et al. [114] supported that poorer family relationship had a 1.2 times increased effects to maternal psychiatric distress (OR=1.2, 95%CI=1.1–1.3).

4) Family member involvement

In this study, the results showed that family member involvement was not significantly associated with maternal mental health problems. Likewise, a previous research [28] reported similar results.

On the contrary, previous research has shown a significant relation between family member involvement and maternal mental health problems [151, 152, 149, 125, 124]. Lam LW and Mackenzie [39] studied the experiences of mothers in coping with a child with Down's syndrome and demonstrated that their partners

displayed indifference to the child and refused to share responsibilities and had lots of arguments. A study of Knafl KA and Deatrick JA [150] revealed that negotiating with a spouse about how to react to a child's behaviors is also a source of stress. The stress is the result of different expectations between spouses about how best to react to the behaviors and could lead to poor maternal mental health. The results are also consistent with the findings of Durmaz A et al. [38] found that mothers reported that spouses did not look after their child with Down's syndrome was found to be 20 times higher than in the control group (OR=19.9, 95%CI=2.5–157.0). Likewise, the results of this study, about 87.0% of the case group responded that they only done house–work, other work and child caring and their family members relieved their burden specifically their requested. Furthermore, about two–third of cases reported that their family members unable to advise or any opinions of care for their child. However, minority families reporting that both mothers and their spouses looked after their child and tried together to solve the problems of caring for a child were found to be 2.4 times less stress than the control group (OR=2.4, 95%CI=1.0–5.8). When their family members assisted in child caring, the maternal stress level was diminished.

5) Family impact

The results of this study indicated no association between family impact and maternal mental health problems. Consistent with the results of previous research, it does not necessarily follow that these families also demonstrate negative outcomes as a result of their increased levels of stress. A qualitative study findings of Kenny and McGilloway [166] recognized that some mothers had found that their child had brought them joy and fulfillment and described the bond they had as unlike any other. Many mothers reported that they felt that having a child with an intellectual disability had brought about a positive change in their attitudes and approaches to life. Furthermore, these mothers felt that they supported each other and that their experience had brought them closer together [153, 71].

On the other hand, some previous studies reported converse results [52, 114, 115, 119, 154, 127, 7]. Many studies identified that mothers of children with delayed developmental reported more negative impact and higher child related stress. Most mothers preferred to isolate themselves and keep their child at home to avoid

stigmatization and criticism. Another reason is that with the day–to–day care, mothers had to accompany their children to training programs, carry on training at home, and take their children to follow–up appointments and assessments that consumes more time to care and less time on social activities [39]. A study conducted by Durmaz A et al. [38] showed that mothers having a child with Down's syndrome had a 2.5 times possibility to get divorced (OR=2.5, 95%CI=1.1–5.7), had 1.8 times reported risk having problem with the father because of the child (OR=1.8, 95%CI=0.8–3.9) and 5.8 times reported they had been accused of having a delayed development child (OR=5.8, 95%CI=0.7–51.1) compared with mothers without a disabled child. In turn, the results of this study showed that both case and control groups responded that they and their partner have no idea to get apart or divorced (82.9% and 92.9% respectively) and brought them became more closer together (78.6% and 85.4% respectively).

Additionally, the study of Kenny and McGilloway [166] and Johnson RF et al. [153] identified through their quantitative findings from mothers, that they felt that their child's disability had directly affected their family, felt a sense of worry with regard to problematic behaviors that the child may display in public and felt that this contributed to social isolation, tiredness, lack of childcare and reduced family spontaneity. In addition, many mothers experienced conflict with their partners, siblings of the child with disability, their own parents and professionals and reported not having enough quality time with their delayed development child.

5.2 Discussion of the research method

5.2.1 The Parental Stress Scale; PSS

The Parental Stress Scale (PSS) was developed by Berry JO and Jones WH [46]. The original scale consisted of 18 items, developed as an alternative to the Parenting Stress Index (PSI) which was widely used to measure parenting stress [19, 35, 23, 25, 123, 121]. Each item uses a five–point Likert scale measuring level of agreement to the statements and a total score range from 18–90 points. The higher the PSS score, the higher the parenting mental health problems. Cronbach's alpha for

items was 0.83, test–retest reliability was 0.81 and it also correlated well with the PSI ($r = 0.75,\ p - value < 0.01$) [44].

Nevertheless, for this study PSS was chosen to identify case and control groups because it displayed better applicability, was shorter and easier to understood and able to focus on mental health problems generated by the parenting role, parent–child relationship and could be used as a screening tool rather than clinical diagnosis [44]. In addition, the PSS was modified by reducing the number of items to be suited for the context of the study sample and the cultural context of Thai mothers', but the same contents were covered as the original version. In addition, it had been proved for content validity by three experts. The scoring conditions were also modified; each item used a four–points rating scale measuring the level of agreement to the statements and a total score range from 11–44 points. Cronbach's alpha coefficient was 0.85 and considered acceptable.

5.2.2 Limitations

The case–control study design was used in this study, allowing determination of the causal relationships among variables according to the research objective [13]. In this study, the number of the subjects was sufficiently to allow meaningful analysis. The researcher could be collected data form the subjects up to 10.0% which higher than the calculated numbers and had a high response rate (100.0%) with the correctness and completeness of questionnaires answered, have resulted adequate power to detect group differences in maternal mental health problems, therefore, increasing statistical power of the study.

The heterogeneity of the study samples was obtained by collecting subjects from various hospitals settings, places providing child development stimulation clinic services in the southern region using the systematic sampling technique of the sampling frame; thus, these study samples, made it possible to gather representatives of mothers of delayed development children who lived in the southern area. The generalization may not apply to those mothers who living in other regions because the socio–economics, culture and facilities differed.

For data collection, the information was gathered from mothers only, so these results may not be generalized to other caregivers, (e.g., fathers, grandparents,

step or foster parents and relatives). Apart from that, the critical measures were self–administered questionnaires, and although they were well suited to the study's focus on self–perceptions and experience of health, they were limited in their ability to assess health objectively or in detail because of the influence of memory and judgments or recall bias. To minimize recall bias, especially that resulting from maternal mental health assessment, this study has set time period (about 2–3 past weeks) of recall events or feelings that occurred when mothers give care for their delayed development children.

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CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This unmatched case–control study aimed to determine the factors associated with mental health problems of mothers of children aged 0–5 years old with delayed development that received services at development stimulation clinics in hospitals of three provinces in the southern region; Surat Thani, Nakhon Si Thammarat and Songkhla. Data collection period was performed from October 2013 to March 2014 using self–administered questionnaires and record forms. Of 210 samples, 70 mothers had mental health problems and 140 mothers of the control group did not. For univariate analysis, factors that were significantly associated with odds to maternal mental health problems were average household income <27,000 baht per month, children with delayed social and self–help skills (p–value <0.05), educational level of below high school and at high school (p–value <0.01), parenting competence, family member involvement, family impact, family relationship, and social support (p–value <0.001).

The model of unconditional logistic regression analysis demonstrated that mothers with lower levels of parenting competence had significantly more likely to have mental health problems about 4.2 times compared with those who had moderate to high levels (OR=4.2, 95%CI=1.3–14.1) and also mothers with lower levels of social support were 3.4 times more likely to have mental health problems compared than those mothers with moderate to high levels (OR=3.4, 95%CI=1.5–7.9). Other variables were not significantly associated with maternal mental health problems.

6.2 Recommendations

6.2.1 Recommendations from the findings of this study

1) Medical personnel should make every effort to screen for maternal mental health, especially when a child was diagnosed with developmentally delayed, to present interventions aimed at reducing or preventing these negative outcomes and ensure that they receive needed mental health services. Maternal mental health screening using an applied parental stress scale (PSS) is sufficiently proper for and to represent real mental health problems that occur from caring for these children.

2) This study has shown strong associations between the lower levels of parenting competence and lower levels of social support with maternal mental health problems. This finding suggests that the accessible sources or opportunities of family member assistance are more important than the characteristics of delayed development children in explaining the reasons of maternal mental health problems. The promotion of parenting competence; skills training of dealing with problems and reinforcing confidence and readiness to care for their child, perceptions of and receiving social support has been an important focus of parent training programs. It helps these mothers to manage their mental health problems more effectively and increase their parenting behavior and skills, and hence, promote their successful management of their child.

3) A child with social and self–help skills delayed were found to be twice as prone to predict maternal mental health problems, and these findings suggest that interventions in a child's socialization skills delayed, so as to promote interaction and participation, may have a greater impact on maternal mental health problems than interventions in other areas. Currently, therapy program for children with development delayed has focused on areas such as communication and motor skills, improvements in these areas may not promote changes in a child's social skills, and more intervention in this area may be necessary.

4) Family relationships and family member involvement played a central role in the psychological health of mothers and also were the most important and necessary. Therefore, we should emphasize family centered care to enable healthcare providers to become more effective. Existing programs of caring for

delayed developmental children are primarily undertaken by family members. This suggests that medical personnel should be encouraged to value family relationships and family member involvement as much as the developmental and technical aspects of services that are offered to children with complex disabilities.

5) Local administration should be involved and play a role with medical staff to provide thorough care for these mothers, the delayed child, and their families, including the needed instrumental support, improved to services access and other necessary requirements.

6.2.2 Recommendation for further study

1) Further research should study the mothers of children with delayed developmental nation–wide to obtain a better understanding of the related factors, whether similar or different, to be used to give interventions or establish plans to care for and support.

2) Future studies should examine what strategies or programs are useful in increasing the positive interactions among mothers with mental health problems and the role of support programs that could foster positive environments to better care for children with delayed development.

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APPENDICES

APPENDIX A
RESEARCH INSTRUMENTS

แบบสอบถาม

เลขที่แบบสอบถาม .....
วันที่ .....

เรื่อง ปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้า ที่มารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้

คำชี้แจง แบบสอบถามชุดนี้เป็นแบบสอบถามมารดาเด็กพัฒนาการล่าช้า มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้า ที่มารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้ ขอให้ท่านพิจารณาข้อความที่กำหนดแล้วตอบตามความคิดเห็นและความรู้สึกของท่านตามความเป็นจริง และขอรับรองว่าจะเก็บข้อมูลของท่านไว้เป็นความลับและไม่มีผลกระทบใดๆ ต่อตัวท่าน โดยข้อมูลจะไม่มีการระบุชื่อ–สกุลของท่าน

แบบสอบถามที่ใช้ในการศึกษาครั้งนี้ แบ่งออกเป็น 8 ส่วน ดังนี้

ส่วนที่ 1 ข้อมูลทั่วไปของมารดา และเด็กพัฒนาการล่าช้า
ส่วนที่ 2 ความสามารถทางพัฒนาการของเด็ก
ส่วนที่ 3 การมีส่วนร่วมของสมาชิกครอบครัวในการดูแลเด็ก
ส่วนที่ 4 ความสามารถของมารดาในการดูแลเด็ก
ส่วนที่ 5 ผลกระทบต่อครอบครัวจากการดูแลเด็กพัฒนาการล่าช้า
ส่วนที่ 6 สัมพันธภาพในครอบครัว
ส่วนที่ 7 การสนับสนุนทางสังคม
ส่วนที่ 8 แบบคัดกรองสุขภาพจิต

ส่วนที่ 1 ข้อมูลทั่วไป

คำชี้แจง กรุณาทำเครื่องหมาย ✓ ลงในช่องว่าง ( ) ในคำตอบที่ตรงตามความเป็นจริงมากที่สุด หรือเติมคำลงในช่องว่าง

1.1 ข้อมูลส่วนบุคคลของมารดา

1) ปัจจุบันท่านอาศัยอยู่ในจังหวัด ( ) สุราษฎร์ธานี ( ) นครศรีธรรมราช ( ) สงขลา

2) พื้นที่อาศัย ( ) ในเขตเทศบาล ( ) นอกเขตเทศบาล

3) อายุ ..... ปี

4) ศาสนา

( ) พุทธ ( ) อิสลาม

( ) คริสต์ ( ) อื่นๆ ระบุ .....

5) สถานภาพสมรส

( ) คู่ ( ) หม้าย

( ) หย่า ( ) แยกกันอยู่

6) อาชีพของมารดา

( ) ไม่ได้ประกอบอาชีพ ( ) เกษตรกรรม

( ) ข้าราชการ ( ) พนักงานของรัฐ / รัฐวิสาหกิจ

( ) รับจ้าง ( ) ค้าขาย / ธุรกิจส่วนตัว

( ) อื่นๆ โปรดระบุ .....

7) โรคประจำตัว

( ) ไม่มี

( ) มี โปรดระบุ ……..

8) ระดับการศึกษา

( ) ไม่ได้เรียนหนังสือ ( ) ประถมศึกษา

( ) มัธยมศึกษาตอนต้น ( ) มัธยมศึกษาตอนปลาย / ปวช.

( ) ปวส. / อนุปริญญา ( ) ปริญญาตรีหรือสูงกว่า

9) รายได้เฉลี่ยต่อเดือนของครอบครัว ..... บาท

10) ระยะเวลาที่ท่านดูแลเด็กที่มีพัฒนาการล่าช้า ..... ปี ..... เดือน

11) จำนวนบุตร ..... คน

คนที่ 1 อายุ ..... ปี ..... เดือน

พัฒนาการ ( ) ปกติ ( ) ผิดปกติ ระบุ .....

( ) อายุที่เริ่มมีพัฒนาการผิดปกติ ..... เดือน

การเจ็บป่วยด้วยโรคเรื้อรัง ( ) ไม่มี ( ) มี ระบุ .....

คนที่ 2 อายุ ..... ปี ..... เดือน

พัฒนาการ ( ) ปกติ ( ) ผิดปกติ ระบุ .....

( ) อายุที่เริ่มมีพัฒนาการผิดปกติ ..... เดือน

การเจ็บป่วยด้วยโรคเรื้อรัง ( ) ไม่มี ( ) มี ระบุ .....

คนที่ 3 อายุ ..... ปี ..... เดือน

พัฒนาการ ( ) ปกติ ( ) ผิดปกติ ระบุ .....

( ) อายุที่เริ่มมีพัฒนาการผิดปกติ ..... เดือน

การเจ็บป่วยด้วยโรคเรื้อรัง ( ) ไม่มี ( ) มี ระบุ .....

12) ประเภทครอบครัว

( ) ครอบครัวเดี่ยว (ประกอบด้วย พ่อ แม่ และลูก)

( ) ครอบครัวขยาย (ประกอบด้วย พ่อ แม่ ลูก และ / หรือ ปู่ ย่า ตา ยาย ลุง ป้า น้า อา)

( ) ครอบครัวเลี้ยงเดี่ยว (ประกอบด้วยพ่อ หรือแม่ และลูก)

13) ความสะดวกในการเดินทางมาโรงพยาบาล

( ) สะดวก (เช่น มีรถโดยสารประจำทาง หรือใช้รถส่วนบุคคล ฯลฯ)

( ) ไม่สะดวก โปรดระบุ .....

1.2 ข้อมูลส่วนบุคคลของเด็กพัฒนาการล่าช้า

1) เพศ ( ) ชาย ( ) หญิง

2) อายุ ..... ปี ..... เดือน

ส่วนที่ 2 ความสามารถทางพัฒนาการของเด็ก

คำชี้แจง โปรดพิจารณาข้อความแต่ละข้อความอย่างละเอียด แล้วทำเครื่องหมาย ✓ ลงในช่องว่าง ( ) ที่ตรงกับความสามารถจริงของเด็ก ทั้งในด้านกิจวัตรประจำวัน ด้านการเคลื่อนไหว และด้านการสื่อสารและบอกความต้องการ โดยประเมินจนถึงอายุปัจจุบันของเด็ก

ด้านกิจวัตรประจำวัน	ด้านการเคลื่อนไหว	ด้านการสื่อสารและบอกความต้องการ
อายุ 6 – 9 เดือน หยิบของป้อนเข้าปากเอง ( ) ทำได้ ( ) ทำไม่ได้ เอื้อมมือหยิบของใกล้ตัว ( ) ทำได้ ( ) ทำไม่ได้	**อายุ 6 – 9 เดือน** เปลี่ยนมือถือของ ( ) ทำได้ ( ) ทำไม่ได้ นั่งได้ไม่ล้ม ( ) ทำได้ ( ) ทำไม่ได้	**อายุ 6 – 12 เดือน** หันหาเสียงเมื่อเรียกชื่อเด็ก ( ) ทำได้ ( ) ทำไม่ได้ เลียนเสียงพูด ( ) ทำได้ ( ) ทำไม่ได้
อายุ 9 – 12 เดือน ถือถ้วยน้ำดื่มเอง ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยเหลือบางครั้ง	**อายุ 9 – 12 เดือน** เกาะยืน ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยพยุงบางครั้ง หยิบของชิ้นเล็ก ( ) ทำได้ ( ) ทำไม่ได้	**อายุ 12 – 18 เดือน** พูดคำพยางค์เดียวมีความหมาย 1 – 3 คำ ( ) ทำได้ ( ) ทำไม่ได้
อายุ 12 – 18 เดือน ใช้ช้อน / ส้อมกินอาหาร ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยเหลือบางครั้ง	**อายุ 12 – 18 เดือน** นั่งยองแล้วลุกขึ้น ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยพยุงบางครั้ง เดินเอง ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยพยุงบางครั้ง	**อายุ 18 – 24 เดือน** บอกชื่อสิ่งของได้อย่างน้อย 1 อย่าง ( ) ทำได้ ( ) ทำไม่ได้ พูดบอกความต้องการ เช่น กินข้าว ดื่มน้ำ เข้าห้องน้ำ ( ) ทำได้ ( ) ทำไม่ได้

ด้านกิจวัตรประจำวัน	ด้านการเคลื่อนไหว	ด้านการสื่อสารและบอกความต้องการ
อายุ 18 – 24 เดือน ถอดเสื้อผ้า ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยเหลือบางครั้ง	**อายุ 18 – 24 เดือน** วิ่ง ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยพยุงบางครั้ง เกาะราวขึ้นบันได ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยพยุงบางครั้ง	**อายุ 24 – 36 เดือน** ตั้งคำถามว่า ทำไม ที่ไหน ( ) ทำได้ ( ) ทำไม่ได้ พูดให้คนอื่นที่ไม่คุ้นเคย เข้าใจได้ครึ่งหนึ่ง ( ) ทำได้ ( ) ทำไม่ได้
อายุ 24 – 36 เดือน ล้างและเช็ดมือเอง ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยเหลือบางครั้ง	**อายุ 24 – 36 เดือน** กระโดดอยู่กับที่ ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยพยุงบางครั้ง	**อายุ 36 – 60 เดือน** พูดให้คนอื่นที่ไม่คุ้นเคย เข้าใจได้ทั้งหมด ( ) ทำได้ ( ) ทำไม่ได้
อายุ 36 – 48 เดือน สวมเสื้อทางศีรษะ ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยเหลือบางครั้ง เข้าห้องน้ำเอง ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยเหลือบางครั้ง	**อายุ 36 – 48 เดือน** ยืนขาเดียวโดยไม่เกาะ ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยพยุงบางครั้ง กระโดดข้ามสิ่งกีดขวางเตี้ยๆ ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยพยุงบางครั้ง	
อายุ 48 – 60 เดือน แต่งตัวเอง ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยเหลือบางครั้ง แปรงฟันเอง ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยเหลือบางครั้ง	**อายุ 48 – 60 เดือน** เดินขึ้น – ลงบันไดโดยไม่เกาะราวบันได ( ) ทำได้ ( ) ทำไม่ได้ ( ) ต้องช่วยพยุงบางครั้ง	

ส่วนที่ 3 การมีส่วนร่วมของสมาชิกครอบครัวในการดูแลเด็ก

คำชี้แจง โปรดพิจารณาข้อความแต่ละข้อความอย่างละเอียด แล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุดเพียงคำตอบเดียวในแต่ละข้อ

1) สมาชิกครอบครัวช่วยเหลือท่านจัดเตรียมอาหารไว้ให้สำหรับเด็ก

( ) ไม่เคยปฏิบัติ ( ) ปฏิบัติบางครั้ง ( ) ปฏิบัติเป็นประจำ

2) สมาชิกครอบครัวเลี้ยงดูเด็กแทนท่านได้

( ) ไม่เคยปฏิบัติ ( ) ปฏิบัติบางครั้ง ( ) ปฏิบัติเป็นประจำ

3) สมาชิกครอบครัวคอยช่วยเหลือในกิจวัตรประจำวันของเด็ก เช่น พาเด็กเข้านอน อาบน้ำ แต่งตัว ป้อนอาหาร เป็นต้น

( ) ไม่เคยปฏิบัติ ( ) ปฏิบัติบางครั้ง ( ) ปฏิบัติเป็นประจำ

4) สมาชิกครอบครัวช่วยเหลือท่านทำงานบ้านที่เกี่ยวข้องกับการดูแลเด็ก

( ) ไม่เคยปฏิบัติ ( ) ปฏิบัติบางครั้ง ( ) ปฏิบัติเป็นประจำ

5) สมาชิกครอบครัวช่วยเหลือ หรือแบ่งเบาภาระของท่านเฉพาะกรณีที่ท่านขอความช่วยเหลือเท่านั้น

( ) ไม่ใช่ ( ) ปฏิบัติบางครั้ง ( ) ปฏิบัติเป็นประจำ

6) เมื่อท่านเจ็บป่วยหรือติดธุระ สมาชิกครอบครัวจะพาเด็กมาโรงพยาบาลตามกำหนดนัดแทนท่าน

( ) ไม่เคยปฏิบัติ ( ) ปฏิบัติบางครั้ง ( ) ปฏิบัติเป็นประจำ

7) ท่านต้องทำงานบ้าน งานอื่นๆ รวมถึงการดูแลเด็กเพียงลำพัง

( ) ไม่ใช่ ( ) เป็นบางครั้ง ( ) เป็นประจำ

8) สมาชิกครอบครัวไม่สามารถให้คำแนะนำ คำปรึกษา หรือความคิดเห็นเกี่ยวกับการดูแลเด็กได้เลย

( ) ไม่ใช่ ( ) เป็นบางครั้ง ( ) เป็นประจำ

9) สมาชิกครอบครัวอำนวยความสะดวกให้ท่านเมื่อต้องพาเด็กมาโรงพยาบาล เช่น ขับรถรับ–ส่ง หรือติดต่อกับเจ้าหน้าที่ เป็นต้น

( ) ไม่ใช่ ( ) ปฏิบัติบางครั้ง ( ) ปฏิบัติเป็นประจำ

10) ดูเหมือนว่าสมาชิกครอบครัวจะไม่ให้ความสนใจกับการเลี้ยงดูเด็กเลย

( ) ไม่ใช่ ( ) เป็นบางครั้ง ( ) เป็นประจำ

ส่วนที่ 4 ความสามารถของมารดาในการดูแลเด็ก

คำชี้แจง โปรดพิจารณาข้อความแต่ละข้อความอย่างละเอียด แล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุดเพียงคำตอบเดียวในแต่ละข้อ โดยมีเกณฑ์การตอบ ดังนี้

เห็นด้วยอย่างยิ่ง หมายถึง ข้อความนั้นตรงกับความคิดเห็น ความรู้สึกของท่านมากที่สุด

เห็นด้วย หมายถึง ข้อความนั้นตรงกับความคิดเห็น ความรู้สึกของท่านมาก

ไม่เห็นด้วย หมายถึง ข้อความนั้นไม่ตรงกับความคิดเห็น ความรู้สึกของท่าน

ไม่เห็นด้วยอย่างยิ่ง หมายถึง ข้อความนั้นไม่ตรงกับความคิดเห็น ความรู้สึกของท่านมากที่สุด

ข้อความ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
1) ท่านสามารถจัดการกับปัญหาที่เกิดขึ้นจากการดูแลเด็กได้				
2) ท่านคิดว่าไม่สามารถดูแลบุตรคนนี้ได้ดีเท่าที่ควร				
3) การดูแลเด็กที่มีพัฒนาการล่าช้าเป็นหน้าที่ที่ยุ่งยากและซับซ้อนสำหรับท่าน				
4) ท่านมีความมั่นใจและความพร้อมเพียงพอสำหรับการดูแลเด็กพัฒนาการล่าช้า				
5) การดูแลเด็กพัฒนาการล่าช้าทำให้ท่านรู้สึกตึงเครียดและวิตกกังวล				
6) ท่านไม่รู้ว่าวิธีการเลี้ยงดูเด็กพัฒนาการล่าช้าที่ถูกต้อง เหมาะสมเป็นอย่างไร				
7) ท่านรู้สึกท้อแท้ และสิ้นหวังที่จะเลี้ยงดูบุตรให้มีพัฒนาการตามศักยภาพ				
8) ท่านรู้สึกมั่นใจมากขึ้นเมื่อได้ปรึกษาปัญหาการเลี้ยงดูเด็กพัฒนาการล่าช้ากับผู้เชี่ยวชาญหรือบุคลากรทางการแพทย์				
9) ท่านจะเลี้ยงดูบุตรคนนี้ให้ดีที่สุด แม้จะทราบว่าบุตรมีพัฒนาการล่าช้า และต้องการการดูแลเป็นพิเศษ				

ส่วนที่ 5 ผลกระทบต่อครอบครัวจากการดูแลเด็กพัฒนาการล่าช้า

คำชี้แจง โปรดพิจารณาข้อความแต่ละข้อความอย่างละเอียด แล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุดเพียงคำตอบเดียวในแต่ละข้อ โดยมีเกณฑ์การตอบ ดังนี้

ไม่มี / ไม่ใช่ หมายถึง ไม่เคยมีความคิดเห็นหรือความรู้สึกตามข้อความนั้นเลย

บางครั้ง หมายถึง ข้อความนั้นตรงกับความคิดเห็นหรือความรู้สึกของท่านเป็นบางครั้ง

มาก หมายถึง ข้อความนั้นตรงกับความคิดเห็นหรือความรู้สึกของท่านมาก

มากที่สุด หมายถึง ข้อความนั้นตรงกับความคิดเห็นหรือความรู้สึกของท่านมากที่สุด

ข้อความ	ไม่มี / ไม่ใช่	บางครั้ง	มาก	มากที่สุด
1) ท่านและครอบครัวรู้สึกอับอายเมื่อเด็กแสดงพฤติกรรมที่ไม่เหมาะสมในที่สาธารณชน				
2) ท่านและครอบครัวมีโอกาสไปเยี่ยมญาติหรือเพื่อนๆ ได้น้อยลง เนื่องจากพฤติกรรมของบุตรคนนี้				
3) ท่านและครอบครัวเข้าร่วมกิจกรรมทางสังคมได้น้อยลง เนื่องจากต้องดูแลบุตรคนนี้				
4) การดูแลบุตรคนนี้ทำให้ภาระค่าใช้จ่ายของครอบครัวเพิ่มมากขึ้น				
5) ค่าใช้จ่ายเกี่ยวกับยา ค่ารักษาพยาบาลและ / หรือ การประกันสุขภาพเพิ่มมากขึ้น				
6) ท่านและคู่สมรส ขัดแย้งกันบ่อยครั้งขึ้นเนื่องจากการดูแลบุตร				
7) ท่านและคู่สมรสรู้สึกรักและผูกพันกันมากขึ้นจากการได้ดูแลบุตรร่วมกัน				
8) คู่สมรสของท่านไม่ได้ช่วยเหลือท่านในการดูแลบุตรเลย				
9) ท่านและคู่สมรสมีโอกาสที่จะแยกกันอยู่เนื่องจากบุตรคนนี้				

ข้อความ	ไม่มี / ไม่ใช่	บางครั้ง	มาก	มากที่สุด
10) การพาเด็กมารับการฝึกกระตุ้นพัฒนาการ ทำให้ท่านหรือสมาชิกครอบครัวต้องขาดงานหรือหยุดงาน และขาดรายได้				
11) ท่านและครอบครัวรู้สึกอับอายเมื่อมีคนถามถึงบุตรคนนี้				
12) บุตรคนนี้เลี้ยงดูยาก และส่งผลกระทบในเชิงลบต่อครอบครัวของท่านในหลายๆ ด้าน				

ส่วนที่ 6 สัมพันธภาพในครอบครัว

คำชี้แจง โปรดพิจารณาข้อความแต่ละข้อความอย่างละเอียด แล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุดเพียงคำตอบเดียวในแต่ละข้อ โดยมีเกณฑ์การตอบ ดังนี้

เห็นด้วยอย่างยิ่ง หมายถึง ข้อความนั้นตรงกับความคิดเห็น ความรู้สึกของท่านมากที่สุด
เห็นด้วย หมายถึง ข้อความนั้นตรงกับความคิดเห็น ความรู้สึกของท่าน
ไม่เห็นด้วย หมายถึง ข้อความนั้นไม่ตรงกับความคิดเห็น ความรู้สึกของท่าน
ไม่เห็นด้วยอย่างยิ่ง หมายถึง ข้อความนั้นไม่ตรงกับความคิดเห็น ความรู้สึกของท่านมากที่สุด

ข้อความ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
1) สมาชิกครอบครัวดูแล เอาใจใส่ต่อกันเป็นอย่างดี				
2) การดูแลและฝึกกระตุ้นพัฒนาการเด็กทำให้ท่านขัดแย้งกับสมาชิกคนอื่นๆ ในครอบครัว				
3) สมาชิกครอบครัวมีส่วนร่วมในการตัดสินใจเกี่ยวกับการเลี้ยงดูเด็กร่วมกัน				
4) เมื่อมีปัญหาเกี่ยวกับการเลี้ยงดูเด็ก สมาชิกครอบครัวจะช่วยกันหาแนวทางแก้ไข				
5) ท่านไม่กล้า หรือลำบากใจที่จะพูดหรืออธิบายถึงความยากลำบากในการเลี้ยงดูเด็กให้สมาชิกครอบครัวฟัง				

ข้อความ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
6) เมื่อมีโอกาส สมาชิกครอบครัวมักจะไปเที่ยวพักผ่อนหรือทำกิจกรรมร่วมกันทั้งครอบครัว				
7) ในรอบปีที่ผ่านมา สมาชิกครอบครัวมีการทะเลาะ ทำร้ายร่างกายกัน				
8) สมาชิกครอบครัวคอยช่วยเหลือ แบ่งเบาภาระเกี่ยวกับงานบ้าน และการเลี้ยงดูเด็ก				
9) เมื่อมีความคิดเห็นขัดแย้งกันในเรื่องการดูแลเด็ก มักจะตกลงกันด้วยเหตุผล				
10) สมาชิกครอบครัวไม่มีโอกาสได้ทำกิจกรรมร่วมกันเลย เนื่องจากต้องดูแลเด็ก				

ส่วนที่ 7 การสนับสนุนทางสังคม

คำชี้แจง โปรดพิจารณาข้อความแต่ละข้อความอย่างละเอียด แล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับความคิดเห็นของท่านมากที่สุดเพียงคำตอบเดียวในแต่ละข้อ โดยมีเกณฑ์การตอบ ดังนี้

เห็นด้วยอย่างยิ่ง หมายถึง ข้อความนั้นตรงกับความคิดเห็น ความรู้สึกของท่านมากที่สุด
เห็นด้วย หมายถึง ข้อความนั้นตรงกับความคิดเห็น ความรู้สึกของท่านมาก
ไม่เห็นด้วย หมายถึง ข้อความนั้นไม่ตรงกับความคิดเห็น ความรู้สึกของท่าน
ไม่เห็นด้วยอย่างยิ่ง หมายถึง ข้อความนั้นไม่ตรงกับความคิดเห็น ความรู้สึกของท่านมากที่สุด

ข้อความ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
1) มีบุคคลคอยดูแลเด็กแทนท่านได้ เมื่อท่านเจ็บป่วย หรือติดธุระ				
2) มีบุคคลคอยให้คำแนะนำเกี่ยวกับการดูแลเด็กพัฒนาการล่าช้า				
3) เมื่อมีปัญหาในการดูแลเด็ก ท่านไม่สามารถขอความช่วยเหลือจากบุคคลอื่นๆ ได้				

ข้อความ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
4) เมื่อพาเด็กมารับบริการที่โรงพยาบาล ท่านได้รับความสะดวก ความเอาใจใส่จากเจ้าหน้าที่เป็นอย่างดี				
5) มีบุคคลใกล้ชิดที่ทำให้ท่านรู้สึกอุ่นใจและคอยให้กำลังใจ				
6) เมื่อมีปัญหาด้านการเงินท่านจะได้รับการช่วยเหลือจากเพื่อน ญาติหรือแหล่งอื่นๆ				
7) ท่านได้รับความรู้ หรือข้อมูลเกี่ยวกับเด็กพัฒนาการล่าช้าจากแหล่งต่างๆ อยู่เสมอ				
8) เมื่อมีปัญหา หรือความขัดแย้งในครอบครัวจากการดูแลเด็ก ท่านไม่สามารถขอคำปรึกษาจากบุคคลใดได้เลย				
9) ท่านไม่ได้รับกำลังใจ และความมั่นใจจากบุคลากรทางการแพทย์เกี่ยวกับการดูแลรักษาเด็กพัฒนาการล่าช้า				
10) ท่านพึงพอใจในวิธีการช่วยเหลือ ทั้งเงินทองสิ่งของและบริการต่างๆ เมื่อครอบครัวของท่านเกิดปัญหา				

ส่วนที่ 8 แบบคัดกรองสุขภาพจิต

คำชี้แจง โปรดพิจารณาข้อความแต่ละข้อความอย่างละเอียด แล้วทำเครื่องหมาย ✓ ลงในช่องที่ตรงกับประสบการณ์ หรือใกล้เคียงกับสภาพของท่านในปัจจุบันหรือในช่วง 2–3 สัปดาห์ที่ผ่าน โดยไม่รวมถึงปัญหาที่ท่านเคยมีในอดีต ซึ่งมีเกณฑ์การตอบ ดังนี้

เห็นด้วยอย่างยิ่ง หมายถึง ข้อความนั้นตรงกับความคิดเห็น ความรู้สึกของท่านมากที่สุด
เห็นด้วย หมายถึง ข้อความนั้นตรงกับความคิดเห็น ความรู้สึกของท่านมาก
ไม่เห็นด้วย หมายถึง ข้อความนั้นไม่ตรงกับความคิดเห็น ความรู้สึกของท่าน
ไม่เห็นด้วยอย่างยิ่ง หมายถึง ข้อความนั้นไม่ตรงกับความคิดเห็น ความรู้สึกของท่านมากที่สุด

ข้อความ	เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
1) ท่านกังวลใจเกี่ยวกับบุตรจนนอนไม่หลับ				
2) ท่านรู้สึกว่าเรื่องต่างๆ ทับถมจนรับไม่ไหว				
3) ท่านรู้สึกกังวล กระวนกระวายและเครียดอยู่ตลอดเวลาเนื่องจากการดูแลบุตร				
4) บางครั้งท่านไม่สามารถทำงานอื่นๆ ได้เลย เพราะตึงเครียดมาก				
5) ท่านกังวลใจเกี่ยวกับภาระค่าใช้จ่ายที่จะต้องใช้ในการดูแลบุตรคนนี้				
6) ท่านรู้สึกอับอาย และเครียดเวลาที่เด็กแสดงพฤติกรรมไม่เหมาะสม				
7) ท่านยอมรับได้กับการมีบุตรพัฒนาการล่าช้า				
8) ท่านดีใจ และภูมิใจที่บุตรของท่านฝึกทักษะใหม่ๆ ได้				
9) ท่านรู้สึกห่างเหิน และไม่อยากดูแลบุตรคนนี้				
10) ท่านสามารถจัดการกับปัญหาที่เกิดจากการดูแลบุตรได้				
11) ท่านรู้สึกหงุดหงิด โมโห หวาดกลัว ซึมเศร้าบ่อยครั้งขึ้น จากการเลี้ยงดูบุตร				

แบบคัดลอกข้อมูลจากเวชระเบียนผู้ป่วยนอก (OPD card)

1) โรคหรือความผิดปกติที่ตรวจพบในเด็ก

( ) กลุ่มอาการดาวน์ ( ) กลุ่มอาการออทิสติก

( ) สมองพิการ ( ) พัฒนาการล่าช้ารอบด้าน

( ) ภาวะพูดช้า ( ) Inborn Errors of Metabolism

( ) พัฒนาการด้านกล้ามเนื้อล่าช้า ( ) Neuromuscular Disease

( ) กลุ่มอาการอื่นๆ ระบุ ……

2) ชนิดของความผิดปกติทางพัฒนาการ

( ) ด้านกล้ามเนื้อมัดใหญ่และการทรงตัว

( ) ด้านกล้ามเนื้อมัดเล็กและการแก้ปัญหา

( ) ด้านภาษาและการสื่อสาร

( ) ด้านทักษะทางสังคมและการช่วยเหลือตนเอง

3) ผลตรวจการรับรู้

การได้ยิน ( ) ปกติ ( ) ผิดปกติ ระบุ …….

( ) อายุที่วินิจฉัยว่าผิดปกติ ……..… เดือน

การมองเห็น ( ) ปกติ ( ) ผิดปกติ ระบุ …….

( ) อายุที่วินิจฉัยว่าผิดปกติ ……..… เดือน

APPENDIX B
LIST OF EXPERTS

All of research instruments, to considering for improve on content validity, correctness, coverage, clearness of a question and appropriateness of language used were recommended by three experts as the following.

1) Lect. Pat Rojmahamongkol, M.D.
Department of Pediatric
Faculty of Medicine, Siriraj Hospital

2) Lect. Ratcharin Kongkasuwan, M.D.
Department of Rehabilitation
Faculty of Medicine, Siriraj Hospital

3) Assist.Prof. Sureelak Sutcharitpongsa, M.D.
Department of Pediatric
Faculty of Medicine, Siriraj Hospital

APPENDIX C
ETHICS APPROVAL OF
SIRIRAJ INSTITUTIONAL REVIEW BOARD

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Siriraj Institutional Review Board
Certificate of Approval

COA no. Si 569/2013

Protocol Title : Factors associated to mental health status of mothers of children with delayed development that took services at development stimulation clinic in hospitals in southern region

Protocol number : 422/2556(EC4)

Principal Investigator/Affiliation : Mr. Siraparulh Thongthep / Department of Preventive and Social Medicine Faculty of Medicine Siriraj Hospital, Mahidol University

Research site : Faculty of Medicine Siriraj Hospital

Approval includes :

1. SIRB submission form
2. Protocol
3. Participant Information Sheet
4. Informed Consent Form
5. Questionnaire
6. Principle Investigator's curriculum vitae

Approval date : September 27, 2013

Expired date : September 26, 2014

This is to certify that Siriraj Institutional Review Board is in full Compliance with international guidelines for human research protection such as the Declaration of Helsinki, the Belmont Report, CIOMS Guidelines and the International Conference on Harmonization in Good Clinical Practice (ICH-GCP).

Jarupim Soongswang

(Prof. Jarupim Soongswang, M.D.)
Chairperson

11 OCT 2013
date

(Clin. Prof. Udom Kachintorn, M.D.)
Dean of Faculty of Medicine Siriraj Hospital

14 OCT 2013
date

ETHICS APPROVAL OF SURAT THANI HOSPITAL

เอกสารรับรองจริยธรรมทางการวิจัย

เอกสารฉบับนี้ เพื่อแสดงว่า โครงการวิจัย
เรื่อง ปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้าที่มารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้
ผู้วิจัย คือ นายศิระปรุฬห์ ทองเทพ
หน่วยงาน คณะแพทยศาสตร์ศิริราชพยาบาล

ได้ผ่านการพิจารณาจากคณะกรรมการจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลสุราษฎร์ธานีแล้ว และเห็นว่าผู้วิจัยต้องดำเนินการตามโครงการวิจัยที่ได้กำหนดไว้แล้ว หากมีการปรับเปลี่ยนหรือแก้ไขใด ๆ ควรผ่านความเห็นชอบหรือแจ้งต่อคณะกรรมการจริยธรรมทางการวิจัยอีกครั้ง

ออกให้ ณ วันที่ ๑๓ เดือนธันวาคม **พ.ศ.** ๒๕๕๖

ลงชื่อ
(นายดามพ์ มุกด์มณี)
นายแพทย์ ระดับชำนาญการ
ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์

ลงชื่อ
(นายอดิเกียรติ เอี่ยมวรนิรันดร์)
ผู้อำนวยการ

ลำดับที่ ๕๘/๒๕๕๖

คณะกรรมการจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลสุราษฎร์ธานี ถ.ศรีวิชัย อ.เมือง จ.สุราษฎร์ธานี ๘๔๐๐๐
โทร. (๐๗๗) ๒๗๒๒๓๑ ต่อ๒๔๖๔, โทรสาร (๐๗๗) ๒๘๓๒๕๗

ETHICS APPROVAL OF
SUANSARANROM PSYCHIATRIC HOSPITAL

เอกสารรับรองด้านจริยธรรมการทำวิจัยในมนุษย์

เลขที่ ๐๒๖/๒๕๕๖

คณะกรรมการวิจัย และคณะกรรมการจริยธรรมการวิจัย โรงพยาบาลสวนสราญรมย์
ขอให้การรับรองว่า

ชื่องานวิจัย : ปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้าที่มารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้

ผู้วิจัยหลัก : นายศิระปรุฬห์ ทองเทพ

หน่วยงาน : สาขาวิชาวิทยาการระบาด คณะแพทยศาสตร์ศิริราชพยาบาล มหาวิทยาลัยมหิดล

เอกสารที่เกี่ยวข้อง :

๑. โครงร่างงานวิจัย
๒. ใบยินยอมให้ทำการวิจัยในมนุษย์
๓. เครื่องมือที่ใช้ในการวิจัย
๔. เอกสารชี้แจงข้อมูลสำหรับผู้เข้าร่วมวิจัย

เป็นการวิจัยที่มีลักษณะตรงตามเกณฑ์ของ International Guidelines for Human Research Protection **ได้แก่** Declaration of Helsinki, the Belmont Report, CIOMS Guidelines and the International Conference on Harmonization's Good Clinical Practice (ICH-GCP) ทุกประการ

วันที่ยื่นพิจารณา : ๕ พฤศจิกายน ๒๕๕๖ **เลขที่งานวิจัยที่ยื่นพิจารณา :** ๒๘/๒๕๕๖
วันที่ได้รับการรับรอง : ๖ ธันวาคม ๒๕๕๖

ลงนาม .....ประธานคณะกรรมการวิจัย
(นายแพทย์ธิติพันธ์ ธานีรัตน์)

ลงนาม .....ประธานคณะกรรมการจริยธรรมการวิจัย
(นายอัตถพงศ์ ถนิมพาสน์)

ลงนาม .....ผู้อำนวยการโรงพยาบาลจิตเวชนครราชสีมาราชนครินทร์
(นายแพทย์จุมภฏ พรมสีดา) รักษาการในตำแหน่ง ผู้อำนวยการโรงพยาบาลสวนสราญรมย์

ETHICS APPROVAL OF
MAHARAJ NAKHON SI THAMMARAT HOSPITAL

รหัสโครงการวิจัยที่ 4/2557
เอกสารรับรองเลขที่ 2/2557

คณะกรรมการจริยธรรมการวิจัยในมนุษย์
โรงพยาบาลมหาราชนครศรีธรรมราช

โครงการวิจัย (ภาษาไทย)	ปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้าที่มารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาล ในภาคใต้
(ภาษาอังกฤษ)	FACTORS ASSOCIATED TO MENTAL HEALTH STATUS OF MOTHERS OF CHILDREN WITH DELAYED DEVELOPMENT THAT TOOK SERVICES AT DEVELOPMENT STIMULATION CLINIC IN HOSPITAL IN SOUTHERN REGION
ผู้วิจัยหลัก	นายศิระปรุฬห์ ทองเทพ
ตำแหน่ง / สถานะ	นักศึกษาปริญญาโท หลักสูตรวิทยาศาสตรมหาบัณฑิต สาขาวิชาวิทยาการระบาด
สถาบัน	คณะแพทยศาสตร์ ศิริราชพยาบาล มหาวิทยาลัยมหิดล

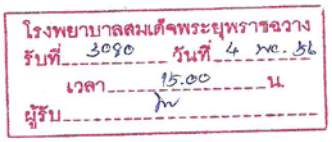
คณะกรรมการจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลมหาราชนครศรีธรรมราช ได้พิจารณาเห็นชอบให้ดำเนินการศึกษาวิจัยดังกล่าวได้ เมื่อวันที่ 9 เดือน ธันวาคม พ.ศ. 2556 และรับรองเป็นระยะเวลา 1 ปี สิ้นสุดระยะการรับรอง วันที่ 8 เดือน ธันวาคม พ.ศ. 2557

ผู้วิจัยต้องรายงานสถานะของโครงการให้คณะกรรมการจริยธรรมการวิจัยในมนุษย์ โรงพยาบาลมหาราชนครศรีธรรมราชทราบตามที่คณะกรรมการฯ กำหนด เพื่อขออนุมัติดำเนินการต่อจนกว่าจะสิ้นสุดระยะการรับรอง

ลงนาม.....
(นางสาวศันสนีย์ ทองสงค์)
ประธานคณะกรรมการจริยธรรมการวิจัยในมนุษย์
โรงพยาบาลมหาราชนครศรีธรรมราช
วันที่ 18 / 6 / 56

ลงนาม.....
(นายสมชัย อัศวสุดสาคร)
ผู้อำนวยการโรงพยาบาลมหาราชนครศรีธรรมราช
วันที่ 19 / ธ.ค. / 56

ETHICS APPROVAL OF
CHAWANG CROWN PRINCE HOSPITAL

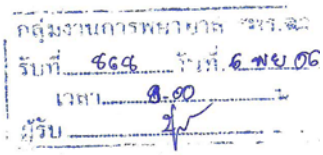


บัณฑิตวิทยาลัย สาขาคณะแพทยศาสตร์ศิริราชพยาบาล
อาคารรักษ์สิ่งแวดล้อม ชั้น ๓ เลขที่ ๒ ถนนพรานนก
เขตบางกอกน้อย กรุงเทพฯ ๑๐๗๐๐
โทร.๐-๒๔๑๑-๒๐๐๒ โทรสาร ๐-๒๔๑๙-๙๔๘๔

ที่ ศธ ๐๕๑๗.๐๒ (ศร)/ ๑๑๔๔๕

วันที่ ๒๑ ตุลาคม ๒๕๕๖

เรื่อง ขอความอนุเคราะห์ให้นักศึกษาได้มาเก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์



เรียน ผู้อำนวยการโรงพยาบาลสมเด็จพระยุพราชฉวาง จังหวัดนครศรีธรรมราช

ด้วย นายศิระปรุฬห์ ทองเทพ นักศึกษาบัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล หลักสูตรปริญญาโท สาขาวิชาวิทยาการระบาด คณะแพทยศาสตร์ศิริราชพยาบาล กำลังทำวิทยานิพนธ์ เรื่อง "ปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้าที่มารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้" อยู่ในความควบคุมของ ผศ.นพ.สัมมน โฉมฉาย ซึ่งในการศึกษาวิจัยครั้งนี้นักศึกษามีความประสงค์จะเก็บข้อมูลจากมารดาอายุ ๑๘ ปีขึ้นไป ที่มีบุตรอายุแรกเกิดถึง ๕ ปี ที่มีพัฒนาการล่าช้า ที่มารับบริการที่คลินิกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้ ๓ จังหวัด คือ จังหวัดสุราษฎร์ธานี, จังหวัดนครศรีธรรมราช และจังหวัดสงขลา ณ อาคารส่งเสริมสุขภาพ ชั้น ๒ โรงพยาบาลสมเด็จพระยุพราชฉวาง จังหวัดนครศรีธรรมราช โดยใช้วิธีเก็บรวบรวมข้อมูลด้วยตนเองโดยคัดลอกข้อมูลจากเวชระเบียนผู้ป่วยนอกและให้กลุ่มตัวอย่างตอบแบบสอบถาม ตั้งแต่วันที่ ๒๘ ตุลาคม ๒๕๕๖ ถึงวันที่ ๓๑ มีนาคม ๒๕๕๗

บัณฑิตวิทยาลัย จึงใคร่ขอความกรุณาจากท่านโปรดอนุเคราะห์ให้นักศึกษาได้เก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์ตามที่เห็นสมควรด้วย จักเป็นพระคุณยิ่ง

เรียน ผ.อ.รพร.ฉวาง

ขอแสดงความนับถือ

(ศาสตราจารย์ นพ.บรรจง มไหสวริยะ)
คณบดีบัณฑิตวิทยาลัย

(นายวินัย ตันติธนพร)
ผู้อำนวยการโรงพยาบาลสมเด็จพระยุพราช ฉวาง

ติดต่ออาจารย์ผู้ควบคุมวิทยานิพนธ์ ผศ.นพ.สัมมน โฉมฉาย
โทรศัพท์ ๐๘๑-๘๓๑-๔๑๙๐

ETHICS APPROVAL OF SONGKHLANAGARINDRA HOSPITAL

เอกสารรับรองของคณะกรรมการจริยธรรมการวิจัยในมนุษย์
คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์

เอกสารเพื่อแสดงว่าคณะกรรมการจริยธรรมการวิจัยในมนุษย์ ได้พิจารณาและรับรองเอกสารที่เกี่ยวข้องกับโครงการวิจัยนี้ ดังนี้

รหัสโครงการ	:	56-480-19-2
ชื่อโครงการภาษาไทย	:	ปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้าที่มารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้
ชื่อโครงการภาษาอังกฤษ	:	Factors associated to mental health status of mothers of children with delayed development that took services at development stimulation clinic in hospital in southern region.
หัวหน้าโครงการวิจัย	:	นายศิระปรุฬห์ ทองเทพ
หน่วยงานที่สังกัด	:	คณะแพทยศาสตร์ ศิริราชพยาบาล มหาวิทยาลัยมหิดล
เอกสารที่รับรอง	:	1. แบบเสนอโครงการวิจัย (Exempt review) 2. เอกสารชี้แจงผู้เข้าร่วมการวิจัย/อาสาสมัคร 3. เอกสารเชิญชวนและแสดงความยินยอมเข้าร่วมโครงการวิจัย 4. แบบบันทึกข้อมูล 5. ประวัติผู้วิจัย

คณะกรรมการจริยธรรมการวิจัยในมนุษย์ คณะแพทยศาสตร์ มหาวิทยาลัยสงขลานครินทร์ ดำเนินการให้การรับรองโรงการวิจัยตามแนวทางหลักจริยธรรมการวิจัยในมนุษย์ที่เป็นสากล ได้แก่ Declaration of Helsinki, The Belmont Report, CIOMS Guidelines และ The international Conference on Harmonization in Good Clinical Practice (ICH-GCP)

.....

(รองศาสตราจารย์นายแพทย์บุญสิน ตั้งตระกูลวนิช)
รองประธานคณะกรรมการพิจารณาจริยธรรมการวิจัยในมนุษย์

วันที่รับรอง : 15 พฤศจิกายน 2556
วันที่หมดอายุ : 14 พฤศจิกายน 2557

ETHICS APPROVAL OF
HATYAI HOSPITAL

THE ETHICS COMMITTEE OF HATYAI HOSPITAL

HATYAI HOSPITAL 182 , HATYAI, SONGKHLA 90110 THAILAND

DOCUMENTARY PROOF OF ETHICAL CLEARANCE COMMITTEE ON HUMAN RIGHTS RELATED TO RESEARCHES INVOLVING HUMAN SUBJECTS

ID1	5
Date	02/01/2014 expired 1 year after issuing
Title of project	Factors associated to mental health status of mothers of children with dalayed development that took services at development stimulation clinic in hospitals in southern region
Protocol number	005/2014
Principal investigator	Mr.Siraparulh Thongthep
Office address	Faculty of Medicine Siriraj Hospital
Document review 1	protocol
Document review 2	proposal

The aforementioned documents have been reviewed and acknowledged by Committe human rights related to researches involving human subjects, based on the declaration of Helsinki

Signature of Chairman ..... Pairoj Boonluksiri

PAIROJ BOONLUKSIRI

Signature of Committee ..... Benthira Rachatapan.

BENTHIRA RACHATAPANTANAKORN

ETHICS APPROVAL OF
SONGKHLA RAJANAGARINDRA PSYCHIATRIC HOSPITAL

เอกสารเลขที่.....32...../2556

คณะกรรมการพิจารณาการศึกษาวิจัยในคน
โรงพยาบาลจิตเวชสงขลาราชนครินทร์

โครงการวิจัย: ปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้าที่มารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้

(Factors associated to mental health status of mothers of children with delayed development that took services at development stimulation clinic in hospitals in southern region)

รหัสโครงการ: -

ผู้ดำเนินการวิจัย: นายศิระปรุฬห์ ทองเทพ

สถานที่ดำเนินการวิจัย: โรงพยาบาลจิตเวชสงขลาราชนครินทร์

ระยะเวลาดำเนินการวิจัย: 12 เดือน

เอกสารที่อนุมัติ:

1.โครงการวิจัยฉบับที่ 1 ลงวันที่ 21 เดือน ตุลาคม พ.ศ. 2556

2.เอกสารชี้แจงข้อมูลอาสาสมัครฉบับที่ 1 ลงวันที่ 21 เดือน ตุลาคม พ.ศ. 2556

3.เอกสารใบยินยอมของกลุ่มประชากรหรือผู้มีส่วนร่วมในการวิจัย
ฉบับที่ 1 ลงวันที่ 21 เดือน ตุลาคม พ.ศ. 2556

4.แบบฟอร์มบันทึกข้อมูล(Case Report Form,CRF) ฉบับที่ 1 ลงวันที่ 21 เดือน ตุลาคม พ.ศ. 2556

5.แผนการดำเนินงานตลอดโครงการวิจัย ฉบับที่ 1 ลงวันที่ 21 เดือน ตุลาคม พ.ศ. 2556

6.ประวัติและคุณสมบัติผู้วิจัย

คณะกรรมการพิจารณาการศึกษาวิจัยในคน โรงพยาบาลจิตเวชสงขลาราชนครินทร์ ได้พิจารณาโครงการแล้ว คณะกรรมการฯพิจารณาอนุมัติในแง่จริยธรรมให้ดำเนินการศึกษาวิจัยเรื่องข้างต้นได้ ทั้งนี้โดยยึดตามเอกสารฉบับภาษาไทยเป็นหลัก อนึ่ง ท่านต้องรายงานสถานะของโครงการให้คณะกรรมการฯทราบทุกปี เพื่อขออนุมัติดำเนินโครงการต่อจนกว่าจะหมดอายุโครงการ

.....ประธานกรรมการ

.....กรรมการและเลขานุการ

รับรองตั้งแต่วันที่ 3 ธันวาคม 2556 ถึงวันที่ 3 ธันวาคม 2557

ETHICS APPROVAL OF SONGKHLA HOSPITAL

บัณฑิตวิทยาลัย สาขาคณะแพทยศาสตร์ศิริราชพยาบาล
อาคารรักษ์สิ่งแวดล้อม ชั้น ๓ เลขที่ ๒ ถนนพรานนก
เขตบางกอกน้อย กรุงเทพฯ ๑๐๗๐๐
โทร.๐-๒๔๑๑-๒๐๐๒ โทรสาร ๐-๒๔๑๙-๙๔๘๔

ที่ ศธ ๐๕๑๗.๐๒ (ศร)/๒๒๔๖
วันที่ ๒๑ ตุลาคม ๒๕๕๖
เรื่อง ขอความอนุเคราะห์ให้นักศึกษาได้มาเก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์

เรียน ผู้อำนวยการโรงพยาบาลสงขลา จังหวัดสงขลา

ด้วย นายศิระปรุหน์ ทองเทพ นักศึกษาบัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล หลักสูตรปริญญาโท สาขาวิชาวิทยาการระบาด คณะแพทยศาสตร์ศิริราชพยาบาล กำลังทำวิทยานิพนธ์ เรื่อง "ปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้าที่มารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้" อยู่ในความควบคุมของ ผศ.นพ.สัมมน โฉมฉาย ซึ่งในการศึกษาวิจัยครั้งนี้นักศึกษามีความประสงค์จะเก็บข้อมูลจากมารดาอายุ ๑๘ ปีขึ้นไป ที่มีบุตรอายุแรกเกิดถึง ๕ ปี ที่มีพัฒนาการล่าช้า ที่มารับบริการที่คลินิกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้ ๓ จังหวัด คือ จังหวัดสุราษฎร์ธานี, จังหวัดนครศรีธรรมราช และจังหวัดสงขลา ณ คลินิกกายภาพบำบัด โรงพยาบาลสงขลา โดยใช้วิธีเก็บรวบรวมข้อมูลด้วยตนเองโดยคัดลอกข้อมูลจากเวชระเบียนผู้ป่วยนอกและให้กลุ่มตัวอย่างตอบแบบสอบถาม ตั้งแต่วันที่ ๒๘ ตุลาคม ๒๕๕๖ ถึงวันที่ ๓๑ มีนาคม ๒๕๕๗

บัณฑิตวิทยาลัย จึงใคร่ขอความกรุณาจากท่านโปรดอนุเคราะห์ให้นักศึกษาได้เก็บข้อมูล เพื่อประกอบการทำวิทยานิพนธ์ตามที่เห็นสมควรด้วย จักเป็นพระคุณยิ่ง

ขอแสดงความนับถือ

(ศาสตราจารย์ นพ.บรรจง มไหสวริยะ)
คณบดีบัณฑิตวิทยาลัย

ติดต่ออาจารย์ผู้ควบคุมวิทยานิพนธ์ ผศ.นพ.สัมมน โฉมฉาย
โทรศัพท์ ๐๘๑-๘๓๑-๕๑๙๐

APPENDIX D
PATICIPANT INFORMATION SHEET

เอกสารชี้แจงผู้เข้าร่วมการวิจัย / อาสาสมัคร

(Participant Information Sheet)

ในเอกสารนี้อาจมีข้อความที่ท่านอ่านแล้วยังไม่เข้าใจ โปรดสอบถามหัวหน้าโครงการวิจัยหรือผู้แทนให้ช่วยอธิบายจนกว่าจะเข้าใจดี ท่านอาจจะขอเอกสารนี้กลับไปอ่านที่บ้าน เพื่อปรึกษา หารือกับญาติพี่น้อง เพื่อนสนิท แพทย์ประจำตัวของท่าน หรือแพทย์ท่านอื่น เพื่อช่วยในการตัดสินใจเข้าร่วมการวิจัย

ชื่อโครงการวิจัย ปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้า ที่มารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้

ชื่อหัวหน้าโครงการวิจัย นายศิระปรุฬห์ ทองเทพ

สถานที่วิจัย คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้ 3 จังหวัด คือ สุราษฎร์ธานี นครศรีธรรมราช และสงขลา

สถานที่ทำงานและหมายเลขโทรศัพท์ของหัวหน้าโครงการวิจัยที่ติดต่อได้ทั้งในและนอกเวลาราชการ กลุ่มงานเวชปฏิบัติครอบครัวและชุมชน โรงพยาบาลทุ่งสง อำเภอทุ่งสง จังหวัดนครศรีธรรมราช 80110 และ / หรือ ภาควิชาเวชศาสตร์ป้องกันและสังคม คณะแพทยศาสตร์ ศิริราชพยาบาล เลขที่ 2 ถนนวังหลัง แขวงศิริราช เขตบางกอกน้อย กรุงเทพมหานคร 10700
หมายเลขโทรศัพท์ 085–6491517

ผู้สนับสนุนทุนวิจัย ไม่มี

ระยะเวลาในการวิจัย 1 ปี 6 เดือน

ที่มาของโครงการวิจัย เด็กที่มีพัฒนาการล่าช้าจะมีแบบแผนของพัฒนาการที่เบี่ยงเบนไปจากปกติ ทำสิ่งหนึ่งสิ่งใดได้ล่าช้ากว่าเด็กปกติในวัยเดียวกัน และพัฒนาการล่าช้าในด้านหนึ่งอาจจะส่งผลให้พัฒนาการในด้านอื่นล่าช้าด้วยก็ได้ โดยความผิดปกติของพัฒนาการนั้น นอกจากจะทำให้เด็กมีข้อจำกัดของการช่วยเหลือตนเองในกิจวัตรประจำวัน การไม่สามารถปรับตัวให้เข้ากับสังคมและ

สิ่งแวดล้อมรอบข้าง และส่งผลกระทบต่อเด็กในด้านอื่นๆ แล้ว ยังส่งผลกระทบต่อผู้ดูแลเด็กด้วย ซึ่งผู้ดูแลหลักส่วนมากจะเป็นมารดา ที่ต้องให้การดูแลเด็กในหลายๆ ด้าน เช่น การป้อนอาหาร การช่วยทำความสะอาดร่างกายและการขับถ่าย การอุ้มหรือช่วยพยุงตัว ตลอดจนการเฝ้าระวังอุบัติเหตุและอันตรายต่างๆ เป็นต้น นอกจากนี้แล้ว เด็กที่มีพัฒนาการล่าช้ายังมีการแสดงออกของพฤติกรรมที่หลากหลายรูปแบบ ทำให้การดูแลจึงมีความยุ่งยาก ซับซ้อน และต้องใช้ระยะเวลานาน จึงส่งผลให้มารดารู้สึกเหนื่อยล้า เครียด กดดัน ขาดความมั่นใจในการดำเนินชีวิต และก่อให้เกิดปัญหาสุขภาพจิต ซึ่งมีผลการศึกษาวิจัยจำนวนมากที่พบว่า มารดาที่ต้องให้การดูแลบุตรที่มีพัฒนาการล่าช้ามีปัญหาสุขภาพจิตมากกว่ามารดาที่มีบุตรพัฒนาการปกติ และประชากรทั่วๆ ไป โดยอาจจะมีหลายปัจจัยที่เกี่ยวข้องจากการดูแลเด็ก ที่อาจจะส่งผลต่อภาวะสุขภาพจิตของมารดา ด้วยเหตุนี้ ผู้วิจัยจึงมีความสนใจที่จะศึกษาถึงปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้าที่มารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้ เพื่อเป็นข้อมูลพื้นฐานในการสนับสนุน และนำไปใช้วางแผนการดูแล ส่งเสริมภาวะสุขภาพจิตของมารดา

วัตถุประสงค์ของโครงการวิจัย เพื่อทราบปัจจัยที่มีความสัมพันธ์กับปัญหาสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้า

ท่านได้รับเชิญให้เข้าร่วมการวิจัยนี้เนื่องจาก เป็นมารดาที่มีอายุ 18 ปีขึ้นไป ที่มีบุตรอายุแรกเกิดถึง 5 ปีที่มีพัฒนาการล่าช้า และมารับบริการที่คลินิกกระตุ้นพัฒนาการของโรงพยาบาลในภาคใต้ ตั้งแต่เดือนตุลาคม พ.ศ. 2556 เป็นต้นไป สามารถพูดคุย สื่อสารและเขียนภาษาไทยได้ดี ไม่มีปัญหาในการฟัง และการมองเห็น

จะมีผู้ร่วมวิจัย / อาสาสมัครนี้ทั้งสิ้นประมาณ 210 คน

หากท่านตัดสินใจเข้าร่วมการวิจัยแล้ว จะมีขั้นตอนการวิจัยดังต่อไปนี้คือ ข้าพเจ้าจะยินดีให้ความร่วมมือในการตอบแบบสอบถามตามความเป็นจริงทุกประการ

ความเสี่ยงที่อาจจะเกิดขึ้นเมื่อเข้าร่วมการวิจัย ผู้เข้าร่วมการวิจัยอาจรู้สึกหงุดหงิด รำคาญ ไม่พึงพอใจ ถ้าต้องตอบแบบสอบถามเป็นเวลานาน ซึ่งอาจจะต้องใช้เวลาในการตอบแบบสอบถามโดยเฉลี่ยประมาณ 20 นาที

หากท่านไม่เข้าร่วมในโครงการวิจัยนี้ ท่านก็จะได้รับการตรวจเพื่อการวินิจฉัยและรักษาโรคของท่านตามวิธีการที่เป็นมาตรฐานคือ ได้รับบริการในคลินิกกระตุ้นพัฒนาการตามวิธีการที่เป็นมาตรฐาน

หากมีข้อสงสัยที่จะสอบถามเกี่ยวข้องกับการวิจัย หรือหากเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัย ท่านสามารถติดต่อ นายศิระปรุฬห์ ทองเทพ หมายเลขโทรศัพท์ 085–6491517

ในการเข้าร่วมการวิจัยครั้งนี้ข้าพเจ้าจะไม่ได้รับค่าตอบแทน และไม่มีค่าใช้จ่ายที่ข้าพเจ้าต้องรับผิดชอบ

ประโยชน์ที่คิดว่าจะได้รับจากการวิจัย ผู้เข้าร่วมโครงการวิจัยอาจไม่ได้รับประโยชน์โดยตรงจากงานวิจัยนี้ แต่การทราบถึงปัจจัยที่มีความสัมพันธ์กับปัญหาสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้า จะเป็นข้อมูลสนับสนุน และเป็นแนวทางให้บุคลากรทางการแพทย์และสาธารณสุขและหน่วยงานอื่นๆ ที่เกี่ยวข้องร่วมกันเฝ้าระวัง ป้องกันและแก้ไขปัญหา รวมถึงจัดรูปแบบบริการที่เหมาะสมสำหรับส่งเสริม และฟื้นฟูสุขภาพจิตแก่มารดา

หากมีข้อมูลเพิ่มเติมทั้งด้านประโยชน์และโทษที่เกี่ยวข้องกับการวิจัยนี้ ผู้วิจัยจะแจ้งให้ทราบโดยรวดเร็วและไม่ปิดบัง

ข้อมูลส่วนตัวของผู้ร่วมวิจัย/อาสาสมัคร จะถูกเก็บรักษาไว้เป็นความลับและจะไม่เปิดเผยต่อสาธารณะเป็นรายบุคคล แต่จะรายงานผลการวิจัยเป็นข้อมูลส่วนรวมโดยไม่สามารถระบุข้อมูลรายบุคคลได้ ข้อมูลของผู้ร่วมวิจัย/อาสาสมัครเป็นรายบุคคลอาจมีคณะบุคคลบางกลุ่มเข้ามาตรวจสอบได้ เช่น ผู้ให้ทุนวิจัย ผู้กำกับดูแลการวิจัย สถาบันหรือองค์กรของรัฐที่มีหน้าที่ตรวจสอบ รวมถึงคณะกรรมการจริยธรรมการวิจัยในคน เป็นต้น โดยไม่ละเมิดสิทธิของผู้ร่วมวิจัย/อาสาสมัครในการรักษาความลับเกินขอบเขตที่กฎหมายอนุญาตไว้

ผู้ร่วมวิจัย/อาสาสมัครมีสิทธิ์ถอนตัวออกจากโครงการวิจัยเมื่อใดก็ได้ โดยไม่ต้องแจ้งให้ทราบล่วงหน้า และการไม่เข้าร่วมการวิจัยหรือถอนตัวออกจากโครงการวิจัยนี้ จะไม่มีผลกระทบต่อการบริการและการรักษาที่สมควรจะได้รับตามมาตรฐานแต่ประการใด

หากท่านได้รับการปฏิบัติที่ไม่ตรงตามที่ได้ระบุไว้ในเอกสารชี้แจงนี้ ท่านสามารถร้องเรียนไปยังประธานคณะกรรมการจริยธรรมการวิจัยในคนได้ที่ สำนักงานคณะกรรมการจริยธรรมการวิจัยในคน อาคารเฉลิมพระเกียรติ ๘๐ พรรษา ๕ ธันวาคม ๒๕๕๐ ชั้น 2
โทร. 0 2419 2667-72 โทรสาร 0 2411 0162

ลงชื่อ..... ผู้ร่วมวิจัย / อาสาสมัคร
(.....)
วันที่.....

ลงชื่อ..... พยาน
(.....)
วันที่.....

APPENDIX E
CONSENT FORM

หนังสือแสดงเจตนายินยอมเข้าร่วมการวิจัย

(Consent Form)

วันที่ …….. เดือน …….. พ.ศ. ……

ข้าพเจ้า ……..…… **อายุ …….. ปี อาศัยอยู่บ้านเลขที่ …… ถนน …….…….. แขวง / ตำบล ……. เขต / อำเภอ …… จังหวัด ……..……...…… รหัสไปรษณีย์ ……...…….. โทรศัพท์ ……..……**

ขอแสดงเจตนายินยอมเข้าร่วมโครงการวิจัยเรื่อง ปัจจัยที่มีความสัมพันธ์กับภาวะสุขภาพจิตของมารดาเด็กพัฒนาการล่าช้า ที่มารับบริการที่คลินิกกระตุ้นพัฒนาการ ของโรงพยาบาลในภาคใต้

โดยข้าพเจ้าได้รับทราบรายละเอียดเกี่ยวกับที่มาและจุดมุ่งหมายในการทำวิจัย รายละเอียดขั้นตอนต่างๆ ที่จะต้องปฏิบัติหรือได้รับการปฏิบัติ ประโยชน์ที่คาดว่าจะได้รับของการวิจัย และความเสี่ยงที่อาจจะเกิดขึ้นจากการเข้าร่วมการวิจัย รวมทั้งแนวทางป้องกันและแก้ไขหากเกิดอันตรายขึ้น ค่าใช้จ่ายที่ข้าพเจ้าจะต้องรับผิดชอบจ่ายเอง โดยได้อ่านข้อความที่มีรายละเอียดอยู่ในเอกสารชี้แจงผู้เข้าร่วมการวิจัยโดยตลอด อีกทั้งยังได้รับคำอธิบายและตอบข้อสงสัยจากหัวหน้าโครงการวิจัยเป็นที่เรียบร้อยแล้ว

ข้าพเจ้าจึงสมัครใจเข้าร่วมในโครงการวิจัยนี้

หากข้าพเจ้ามีข้อข้องใจเกี่ยวกับขั้นตอนของการวิจัย หรือหากเกิดผลข้างเคียงที่ไม่พึงประสงค์จากการวิจัยขึ้นกับข้าพเจ้า ข้าพเจ้าจะสามารถติดต่อกับ นายศิระปรุฬห์ ทองเทพ กลุ่มงานเวชปฏิบัติครอบครัวและชุมชน โรงพยาบาลทุ่งสง อำเภอทุ่งสง จังหวัดนครศรีธรรมราช 80110 หมายเลขโทรศัพท์ 085–6491517

หากข้าพเจ้าได้รับการปฏิบัติไม่ตรงตามที่ระบุไว้ในเอกสารชี้แจงผู้เข้าร่วมการวิจัย ข้าพเจ้าสามารถติดต่อกับประธานคณะกรรมการจริยธรรมการวิจัยในคนได้ที่ สำนักงานคณะกรรมการจริยธรรมการวิจัยในคน อาคารเฉลิมพระเกียรติ ๘๐ พรรษา ๕ ธันวาคม ๒๕๕๐ ชั้น 2 โทร.0 2419 2667-72 โทรสาร 0 2411 0162

ข้าพเจ้าได้ทราบถึงสิทธิ์ที่ข้าพเจ้าจะได้รับข้อมูลเพิ่มเติมทั้งทางด้านประโยชน์และโทษจากการเข้าร่วมการวิจัย และสามารถถอนตัวหรืองดเข้าร่วมการวิจัยได้ทุกเมื่อโดยไม่ต้องแจ้งล่วงหน้าหรือระบุเหตุผล โดยจะไม่มีผลกระทบต่อการบริการและการรักษาพยาบาลที่ข้าพเจ้าจะได้รับต่อไปในอนาคต และยินยอมให้ผู้วิจัยใช้ข้อมูลส่วนตัวของข้าพเจ้าที่ได้รับจากการวิจัย แต่จะไม่เผยแพร่ต่อสาธารณะเป็นรายบุคคล โดยจะนำเสนอเป็นข้อมูลโดยรวมจากการวิจัยเท่านั้น

ข้าพเจ้าได้เข้าใจข้อความในเอกสารชี้แจงผู้เข้าร่วมการวิจัย และหนังสือแสดงเจตนายินยอมนี้โดยตลอดแล้ว จึงลงลายมือชื่อไว้

ลงชื่อ ……..…….. ผู้ร่วมวิจัย วันที่ ……...…
(……)

ลงชื่อ ……..…….. หัวหน้าโครงการวิจัย วันที่ ……...……
(……..……)

APPENDIX F
OTHER RESULTS

Table F1 Percentage of each item of parenting competence scale among 210 mothers (Cases; n=70, Controls; n=140) of delayed development children

Statements	Cases (Controls)			
	Strongly Agree	Agree	Disagree	Strongly Disagree
	%(%)	%(%)	%(%)	%(%)
1) You manageable of any problems in child care	10.0(30.0)	38.6(58.6)	50.0(11.4)	1.4(0.0)
2) You think that could not care for your child as well as them should	2.9(0.0)	64.3(16.4)	31.4(44.3)	1.4(39.3)
3) Caring for this child was difficult and complex	15.7(3.6)	75.7(40.0)	8.6(32.1)	0.0(24.3)
4) You have adequate confidence and readiness to take care your delayed development child	7.1(33.6)	25.7(47.8)	64.3(15.0)	2.9(3.6)
5) Caring for the delayed development child makes you tense and anxious	24.3(7.9)	70.0(52.1)	5.7(27.1)	0.0(12.9)
6) You did not know how the right way to take care your delayed development child	17.1(5.0)	67.1(38.6)	12.9(45.0)	2.9(11.4)

Table F1 Percentage of each item of parenting competence scale among 210 mothers (Cases; n=70, Controls; n=140) of delayed development children (cont.)

Statements	Cases (Controls)			
	Strongly Agree	Agree	Disagree	Strongly Disagree
	%(%)	%(%)	%(%)	%(%)
7) You felt discouraged and hopeless to care for your child in their development milestone	11.4(3.6)	60.0(21.4)	24.3(41.4)	4.3(33.6)
8) When you met and consulted with experts or health staff, you more of confident	1.4(0.0)	15.8(0.7)	41.4(29.3)	41.4(70.0)
9) Even though to knew that your child had delay development and needed special care, you are willing to care for them to your best ability	28.6(72.9)	54.3(25.7)	17.1(1.4)	0.0(0.0)

Table F2 Percentage of each item of family member involvement scale among 210 mothers (Cases; n=70, Controls; n=140) of delayed development children

Statements	Cases (Controls)		
	Have not	Sometimes	Regularly
	%(%)	%(%)	%(%)
1) Family members assisted you prepare food for a child	8.6(7.1)	55.7(40.8)	35.7(52.1)
2) Family members could be instead you for raising a child	7.1(4.3)	50.0(45.0)	42.9(50.7)
3) Family members assisted the child for their daily living activity such as putting to bed, bathing, dressing or feeding	10.0(3.6)	58.6(40.0)	31.4(56.4)
4) Family members helped you do whatever house–works related to child care	7.1(5.0)	58.6(45.7)	34.3(49.3)
5) Family members relieved your burden specifically you requested	12.9(25.7)	57.1(50.0)	30.0(24.3)
6) Family member could be act for taking a child to hospital by kept an appointment when you got ills or engaged	34.3(22.9)	27.1(26.4)	38.6(50.7)
7) You only done house work, other works and child caring	12.9(30.7)	41.4(43.6)	45.7(25.7)
8) Family members unable to advises or any opinions for taking care a child	31.4(55.7)	55.7(38.6)	12.9(5.7)
9) When you take a child to the hospital, other members will facilitate you (contact with staff, etc.)	12.9(2.9)	24.3(19.3)	62.8(77.8)
10) It seems that family members are not paying attention to caring for a child	51.5(87.9)	37.1(9.3)	11.4(2.8)

Table F3 Percentage of family impact scale among 210 mothers (Cases; n=70, Controls; n=140) of delayed development children

Statements	Cases (Controls)			
	Have not	Sometimes	A lot	Very much
	%(%)	%(%)	%(%)	%(%)
1) Your child's behavior embarrasses you and your family in public more	28.6(65.7)	54.3(32.9)	17.1(1.4)	0.0(0.0)
2) You and your family visits friends and relatives less than you would like to because of your child's behavior	30.0(66.4)	52.9(29.3)	15.7(4.3)	1.4(0.0)
3) You and your family avoids social outings more because of had to raising a child	12.9(50.0)	61.4(42.9)	24.3(6.4)	1.4(0.7)
4) The cost of raising of this child is more	5.7(38.6)	12.9(27.1)	54.3(24.3)	27.1(10.0)
5) The cost of medication, medical care and / or medical insurance is more	8.6(50.7)	22.8(21.4)	48.6(23.6)	20.0(4.3)
6) You and your partner disagree more about how to raise this child	27.1(70.7)	62.9(24.3)	4.3(3.6)	5.7(1.4)
7) Raising this child has brought you and your partner closer together	21.4(13.6)	48.6(18.6)	24.3(36.4)	5.7(31.4)

Table F3 Percentage of family impact scale among 210 mothers (Cases; n=70, Controls; n=140) of delayed development children (cont.)

Statements	Cases (Controls)			
	Have not	Sometimes	A lot	Very much
	%(%)	%(%)	%(%)	%(%)
8) Your partner is less supportive of the way you deal with your child	31.5(70.7)	55.7(21.4)	5.7(1.4)	7.1(6.5)
9) Raising this child has pushed you and your partner further apart	82.9(92.9)	8.6(2.9)	0.0(0.0)	8.5(4.2)
10) Taking a child to development stimulation that makes you or other members absent from work and lack of income	14.3(41.4)	18.6(40.7)	44.3(13.6)	22.8(4.3)
11) When asked about this child, you and your family feel embarrassed	31.4(80.7)	55.7(17.1)	11.5(2.2)	1.4(0.0)
12) This child is difficult to care and negative effects to your family	24.3(67.1)	34.3(24.3)	38.6(8.6)	2.8(0.0)

Table F4 Percentage of family relationship scale among 210 mothers (Cases; n=70, Controls; n=140) of delayed development children

Statements	Cases (Controls)			
	Strongly Agree	Agree	Disagree	Strongly Disagree
	%(%)	%(%)	%(%)	%(%)
1) Family members care for each other as well	11.5(49.3)	67.1(46.4)	17.1(4.3)	4.3(0.0)
2) Raising and stimulating development this child that caused of interpersonal conflicts	7.1(2.1)	35.7(10.7)	52.9(52.9)	4.3(34.3)
3) Family members are involved in decisions about raising this child together	11.4(34.3)	58.6(57.9)	30.0(7.1)	0.0(0.7)
4) Family members help to find ways for troubleshooting of raise child	1.4(40.7)	64.3(53.6)	25.7(5.0)	1.4(0.7)
5) You were not dare to or oppressed to told or described to other members about the difficulty to raise this child	22.9(4.3)	41.4(15.7)	34.3(47.1)	1.4(32.9)
6) Family members usually had a rest or activities together	10.0(40.0)	48.6(50.0)	40.0(8.6)	1.4(1.4)
7) Family members have quarreled or used bodily harm, in the past year	2.9(0.7)	14.3(5.7)	35.7(21.5)	47.1(72.1)

Table F4 Percentage of family relationship scale among 210 mothers (Cases; n=70, Controls; n=140) of delayed development children (cont.)

Statements	Cases (Controls)			
	Strongly Agree	Agree	Disagree	Strongly Disagree
	%(%)	%(%)	%(%)	%(%)
8) Family members help you do house–work and raise the child	7.1(42.9)	68.6(47.1)	21.4(6.4)	2.9(3.6)
9) When differing opinions are given in raise this child, usually the reason is agreed upon	7.1(30.7)	67.1(60.7)	25.8(6.5)	0.0(2.1)
10) Family members had no chance to do any activities together because of cared for this child	12.8(2.9)	42.9(12.1)	42.9(50.7)	1.4(34.3)

Table F5 Percentage of social support scale among 210 mothers (Cases; n=70, Controls; n=140) of delayed development children

Statements	Cases (Controls)			
	Strongly Agree	Agree	Disagree	Strongly Disagree
	%(%)	%(%)	%(%)	%(%)
1) When you were sick or engaged, someone instead care for your child	32.9(47.9)	50.0(43.6)	17.1(6.4)	0.0(2.1)
2) Someone to give you good advise about raising this child	8.6(33.6)	55.7(52.9)	35.7(12.1)	0.0(1.4)

Table F5 Percentage of social support scale among 210 mothers (Cases; n=70, Controls; n=140) of delayed development children (cont.)

Statements	Cases (Controls)			
	Strongly Agree	Agree	Disagree	Strongly Disagree
	%(%)	%(%)	%(%)	%(%)
3) You could not ask for help from any person when in trouble of raise the child	4.3(4.3)	40.0(11.4)	54.3(63.6)	1.4(20.7)
4) You were facilitated and received attentiveness from health staff when your child received medical services at the hospital	60.0(72.9)	38.6(26.4)	1.4(0.7)	0.0(0.0)
5) You have a close person who makes you feel relieved and supported	11.4(42.9)	68.6(52.9)	20.0(4.2)	0.0(0.0)
6) When have had of financial problems, you get help from friends, relatives, or other sources	4.2(35.0)	52.9(58.6)	40.0(5.7)	2.9(0.7)
7) You always gained of knowledge or information about children with delayed development	2.9(27.9)	34.3(50.7)	58.6(20.0)	4.2(1.4)
8) You unable to consulted with any person when it had interpersonal conflict of raised child	2.9(2.1)	38.6(12.1)	54.3(55.8)	4.2(30.0)

Table F5 Percentage of social support scale among 210 mothers (Cases; n=70, Controls; n=140) of delayed development children (cont.)

Statements	Cases (Controls)			
	Strongly Agree	Agree	Disagree	Strongly Disagree
	%(%)	%(%)	%(%)	%(%)
9) You had no supported and confidence about attendance for this child from medical personnel	1.4(5.0)	12.8(2.9)	42.9(32.1)	42.9(60.0)
10) You satisfactions in the way that supported whatever all of money, objects, and services, when your family encountered with troubles	12.9(33.5)	50.0(53.6)	35.7(10.0)	1.4(2.9)

BIOGRAPHY

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