

**A STRUCTURAL MODEL DEVELOPMENT OF
MERCER'S MATERNAL ROLE ATTAINMENT
IN THAI HIV- SEROPOSITIVE MOTHERS**

The seal of Mahidol University is a circular emblem. It features a central blue circle containing a golden Thai stupa. Surrounding this is a yellow ring with Thai script. The outermost ring is white with a yellow border and more Thai script. The text 'MAJOR. PENNAPA PAKDEWONG' is superimposed over the central blue circle.

MAJOR. PENNAPA PAKDEWONG

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY
(NURSING)**

**FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY**

2006

ISBN 974-04-6851-9

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Thesis

Entitled

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SEROPOSITIVE MOTHERS**

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For the Degree of Doctor of Philosophy (Nursing)
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ACKNOWLEDGEMENT

I would like to express my gratitude to my dissertation committee for their supports in completing this study. My deepest appreciate goes to Dr. Saipin Kasemkitwatana, my academic advisor and chairperson of my dissertation committee for her assistance, guidance, comments and driving force in development of this dissertation.

My profound gratitude also goes to Dr. Kobkul Phanchroenworakul, Dr. Margaret Shandor Miles, Dr. Wannee Kamkaet, Dr. Veena Jirapaet, and Dr. Yupapin Sirapo-ngam for their insightful advices and invaluable comments.

My gratefulness goes to all experts who gave their helpful suggestion throughout the content validity process of all instruments used in this study. I am also thankful Dr. Thomas Hoy for editing and editorial advice.

I greatly appreciate to the staff nurses and other health care providers at the data collecting hospitals as well as the mothers for their cooperation in data collection.

My special recognition goes to the Ministry of Defense for my full-time study leave and the Thai Health Promotion Foundation for research funding.

I am thankful for the love of my husband for supporting everything in this research including financial matters and precious time, my son and my mother for their supports and cheerfulness. I also appreciate my classmates for their friendships and share experiences.

A STRUCTURAL MODEL DEVELOPMENT OF MERCER'S MATERNAL ROLE ATTAINMENT IN THAI HIV- SEROPOSITIVE MOTHERS

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ABSTRACT

In the context of HIV infection, mothers HIV encounter a number of stressors, including the physical symptoms, emotional responses and social disruption. These problems can interrupt the process of maternal role attainment that affect growth and development of infants. By using Mercer's maternal role attainment as a conceptual framework, the purposes of this study were to develop a structural causal model describing the relationships among stigma, maternal health status, infant health status, social support, self-esteem, maternal depression, and maternal role attainment in Thai HIV-positive mothers.

This research was descriptive study and cross-sectional design. The simple sampling technique was used to recruit 263 HIV-positive biological mothers who were 18 years and over, living with their infants aged 3 to 12 months in government hospitals in the Bangkok metropolitan area, and other provinces. A set of self-report questionnaires, which were The Short-form of Maternal Role Attainment questionnaire (SF-MRAS), The Center for Epidemiologic Studies Depression Scale (CES-D), Rosenberg's Self-esteem Scale, The Self-rated Health Status, The HIV-symptom Index, The History of Infant Illness, The Personal Resource Questionnaires 85 (PRQ 85) part 2, The Demi's HIV-stigma Scale, and The Demographics and Background Information Questionnaire, was completed by the subjects. SPSS 11.5 and LISREL 8.52 were used for data analysis.

The goodness of fit indices indicated that the model fit the data well and explained 17% of variance in maternal role attainment. The best fit model illustrated that self-esteem and social support had a significant positive direct effect on maternal role attainment ($\beta = .32, p < .001$; $\beta = 0.22, p < .05$ respectively). Perceived stigma had a significantly negative indirect effect on maternal role attainment through maternal self-esteem ($\beta = -.18, p < .05$). In addition, perceived stigma had a negative direct effect, while social support had a positive direct effect on self-esteem ($\beta = -.78, p < .001$; $\beta = 0.38, p < .05$ respectively). Perceived stigma, and maternal health status had a direct effect on maternal depression ($\beta = .33, p < .001$; $\beta = 0.31, p < .05$ respectively); social support had a negative direct effect on depression ($\beta = -.25, p < .01$). Maternal health status, infant health status, and maternal depression failed to predict maternal role attainment in this study.

The results in this study suggest that to enhance maternal role attainment in HIV-positive mothers, health care providers, multidisciplinary teams and policy makers should contribute to the intervention program to increase social support and self-esteem in HIV positive mothers, and should help HIV-positive mothers decrease perceived stigma.

KEY WORDS: HIV/ MOTHER/ THE STRUCTURAL MODEL/

MERCER'S THEORY/ MATERNAL ROLE ATTAINMENT

P. 152. ISBN 974-04-6851-9

การพัฒนาโมเดลความสำเร็จในการดำรงบทบาทมารดาของทฤษฎีเมอร์เซอร์ ในมารดาไทยติดเชื้อ เอช ไอ วี
(A STRUCTURAL MODEL DEVELOPMENT OF MERCER'S MATERNAL ROLE ATTAINMENT
IN THAI HIV- SEROPOSITIVE MOTHERS)

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บทคัดย่อ

มารดาที่ติดเชื้อ เอช ไอ วี ต้องเผชิญปัญหาทั้งด้านร่างกาย จิตใจ สังคม อย่างมาก ปัจจัยดังกล่าวอาจส่ง
ผล ขัดขวาง ต่อการดำรงบทบาทมารดา ซึ่งเป็นพื้นฐานสำคัญที่จะทำให้ทารก มีการเจริญเติบโต และ พัฒนาการ
ที่สมวัยต่อไป การศึกษาครั้งนี้ใช้กรอบแนวคิดทฤษฎีของเมอร์เซอร์ มีวัตถุประสงค์เพื่อพัฒนาโมเดลเชิงสาเหตุ
ของความสัมพันธ์ระหว่าง การรับรู้ตราบาป สุขภาพของมารดา สุขภาพของทารก การสนับสนุนทางสังคม ความ
รู้สึกมีคุณค่าในตนเอง ภาวะซึมเศร้าของมารดา และ ความสำเร็จการดำรงบทบาทมารดา

กลุ่มตัวอย่างคือมารดาที่ติดเชื้อ เอช ไอ วี อายุ 18 ปีขึ้นไป อยู่กับทารกอายุ 3-12 เดือน จำนวน 263
ราย คัดเลือกจากการสุ่มอย่างง่าย จากโรงพยาบาลของรัฐในกรุงเทพมหานครและปริมณฑล และในจังหวัดใกล้เคียง
เครื่องมือที่ใช้ในการศึกษาได้แก่ แบบวัดการดำรงบทบาทมารดา แบบวัดภาวะซึมเศร้า แบบวัดความรู้สึกมี
คุณค่าในตนเอง แบบวัดการรับรู้สุขภาพ และ แบบสอบถามอาการเจ็บป่วยมารดา แบบสอบถามประวัติการเจ็บ
ป่วยทารก แบบวัดการรับรู้การสนับสนุนทางสังคม แบบวัดการรับรู้ตราบาป และ แบบบันทึกข้อมูลส่วนบุคคล
กลุ่มตัวอย่างที่เข้าเกณฑ์ และยินดีเข้าร่วมโครงการวิจัยตอบชุดแบบสอบถามเมื่อเข้าร่วมโครงการ

ผลการทดสอบโมเดลด้วยโปรแกรม LISREL 8.53 พบว่าแบบจำลองเชิงโครงสร้าง มีความสอดคล้อง
กับข้อมูลเชิงประจักษ์ สามารถอธิบายความสำเร็จในการดำรงบทบาทมารดาได้ ร้อยละ 17 ปัจจัยที่มีอิทธิพลโดย
ตรงในทางบวกต่อการดำรงบทบาทมารดา คือ ความรู้สึกมีคุณค่าในตนเอง ($\beta = .32, p < .001$) และ การรับรู้การ
สนับสนุนทางสังคม ($\beta = 0.22, p < .05$) ส่วนการรับรู้ตราบาปมีอิทธิพลทางอ้อมในทางลบต่อการดำรงบทบาท
มารดา ($\beta = -0.18, p < .05$) นอกจากนั้นพบว่า การรับรู้ตราบาป มีอิทธิพลโดยตรงในทางลบและ การรับรู้การ
สนับสนุนทางสังคมมีอิทธิพลโดยตรงในทางบวกต่อความรู้สึกมีคุณค่าในตนเอง ของ มารดาที่ติดเชื้อ เอช ไอ วี
($\beta = -.78, p < .001$; $\beta = 0.38, p < .05$ ตามลำดับ) และ การรับรู้ตราบาป และ ภาวะสุขภาพ ของมารดา มีอิทธิพล
โดยตรงในทางบวกต่อภาวะซึมเศร้าของมารดาที่ติดเชื้อ เอช ไอ วี ($\beta = .33, p < .001, \beta = 0.31, p < .05$ ตาม
ลำดับ) และ การสนับสนุนทางสังคมมีอิทธิพลโดยตรงในทางลบ ต่อภาวะซึมเศร้าของมารดาที่ติดเชื้อ เอช ไอ วี
($\beta = -.25, p < .01$) แต่ ภาวะสุขภาพทารก ภาวะซึมเศร้า และ ภาวะสุขภาพมารดา ไม่สามารถทำนายความสำเร็จ
ในการดำรงบทบาทมารดา ของมารดาที่ติดเชื้อ เอช ไอ วี

ผลการวิจัยแสดงให้เห็นว่า ความรู้สึกมีคุณค่าในตนเองของมารดา การสนับสนุนทางสังคม และการรับรู้
ตราบาป เป็นปัจจัยสำคัญต่อความสำเร็จในการดำรงบทบาทมารดา ในมารดาที่ติดเชื้อ เอช ไอ วี ผลการวิจัยให้แนว
ทางในการกำหนดนโยบายและการพัฒนาแนวปฏิบัติ เพื่อส่งเสริมให้มารดาติดเชื้อเอช ไอ วี ประสบความสำเร็จใน
การดำรงบทบาทมารดาต่อไป

P. 152. ISBN 974-04-6851-9

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CHAPTER I

INTRODUCTION

Background and Significance of the Study

Human Immunodeficiency Virus (HIV) infection and its later manifestations as Acquired Immunodeficiency Syndrome (AIDS) are regarded as a major chronic disease and a devastating pandemic occurring in all parts of the world (Joint United Nations Programme on HIV/AIDS [UNAIDS] and World Health Organization [WHO], 2001). By 2001, HIV had caused approximately 20 million deaths and an estimated 40 million people globally were living with HIV. Over the past decade, the epidemic of HIV infection has changed with the majority of new infections now occurring in young adults, especially young vulnerable women (UNAIDS/WHO, 2001).

The number of Thai people living with HIV/ AIDS was about 695,000 by 2000, of whom an estimated 250,000 were women including sex workers. Two-fifths of all new infections probably occurred through husband-to-wife transmission. As a result, mother-to-child infections have become a significant portion of new infections in Thailand (The Thai Working Group on HIV/ AIDS Projection [TWGP], 2001). The number of Thai children infected with HIV from vertical transmission increased by 14 per cent from 1990 to 2000, and the estimated number of infants born to HIV-infected mothers is 5,000 to 10,000 each year (Cheaskul, 1998; Tiamson, 2002; TWGP, 2001). To reduce mother-to-child transmission, antiretroviral therapy has been implemented in HIV-infected pregnant women (Cheaskul et al., 2002; Tiamson, 2002). However, the research findings indicated that all infants born to HIV-infected mothers, whether HIV-infected or not, are at risk of growth and developmental problems (Holditch-Davis et al., 2001; Saavedra, et al., 1995). In addition, the parenting or mothering role quality of HIV-infected mothers affects the developmental outcomes of these infants (Holditch-Davis et al., 2001). Therefore, the maternal role is an important factor that should be considered together with the implementation of the antiretroviral therapy to promote the health of these mothers and infants.

Maternal role attainment is vital in promoting an infant's well being, growth and psychological development (Meighan, 2001; Walker, Crain, & Thomson, 1986). During the transition to the maternal role, a mother becomes attached to her baby, acquires skills in caring for her infant and expresses satisfaction in the maternal role (Mercer, 1985b; 1995). Maternal role attainment begins during pregnancy and continues for about three to nine months after delivery (Mercer, 1981; 1985b; 1995). According to Mercer's theoretical framework (Mercer; 1981; 1995; Meighan, 2001), maternal role attainment is influenced by the factors including maternal characteristics such as depression, health, and self-esteem; environmental factors such as social support and social stress; and infant characteristics such as infant health and temperament.

In the context of HIV infection, however, mothers with HIV have to deal with a number of stressors, including their own health and psychosocial conditions while taking care of their infants and attaining the maternal role (Chearskul et al., 2002; Gottesman, 1990; Semple et al., 1993; Tiamson, 2002;). Research findings indicate that HIV-infected mothers are at risk of developing their own health problems, particularly from opportunistic infection (Semple et al., 1993) combined with the unpredictable course of HIV (Antle, Wells, Goldie, DeMatteo, & King, 2001; Faithfull, 1997; Fowler, Melnick, & Mathieson, 1997). High depressive symptoms, at risk of depression, is also particularly salient for HIV-positive mothers who have young infants (Bennetts et al., 1999; Manopaiboon et al., 1997; Miles, Burchinal, Holditch-Davis, Wasilewski, & Christian, 1997; Miles, Gillespie, & Holditch-Davis, 2001).

In addition, HIV-positive mothers are particularly vulnerable to stressful environments related to the disease and its ramifications such as the stigma of HIV, and the need for social support (Hackl, Somlai, Kelly & Kalichman, 1997; Thampanichawat, 1999; Jirapaet, 2001; Limrungrong, 1997). These mothers perceive HIV/ AIDS as a stigmatized disease (Thampanichawat, 1999), and struggle with whether or not to disclose their HIV status because they concerned that the disclosure may result in social rejection and discrimination (Hackl et al., 1997; Ingram, & Hutchinson, 1999; Sandelowski, & Barroso, 2003). They put effort into dealing with the stigma by managing the information, and living with secrecy, which leads to difficulty in seeking social support (Moneyham et al., 1996).

While these mothers are coping with their own health and psychosocial problems, they are also concerned about the uncertainty of whether or not their infants have HIV-infection because infants born to HIV-positive mothers retain the sero-status of HIV after birth and retain passively acquired IgG antibodies for up to 18 months of age after birth (Krist, & Crawford-Faucher, 2001; Suntararachun, 1998). In addition, these infants may be susceptible to opportunistic infection, and HIV/AIDS symptoms despite having received advanced antiretroviral therapy. Therefore, HIV-positive mothers may have an the added burden of some special child care problems including medication management, observation of HIV symptoms (Boulton, Beck, Walters, & Miller, 1999; Krist, & Crawford-Faucher, 2001), and caring for a sick child (Ferrari, Paine, Gegor, Summers, & Anderson, 1993).

Given particular concern about the maternal role, HIV-infection itself and its ramifications could have effects on maternal role attainment. Johnson and Lobo (2001) reported that HIV-positive mothers with high depressive symptoms had few interactions with their infants. In addition, Nettip, Suwanprateep, and Charoenratana (1997) reported that HIV-positive mothers had decreased attachment to their infants during the post-partum period. Children with one or both parents with HIV-infection had lower quality of life with lower physical, psycho-emotional, and intellectual ability, and a lower level of social well-being domain, compared with children whose parents had no HIV-infection (Techapan, 1999). Similarly, Holditch-Davis and colleagues (2001) indicated that the mental development and adaptive behavior of infants who were living with HIV-positive mothers decreased over time. Development of infants was associated with positive attention from their mothers. These findings indicate that HIV-status in mothers threaten positive attention and decrease attachment to infants with HIV-infected mothers.

Jirapaet (2001) studied the maternal role attainment among Thai, HIV-positive mothers. The findings showed that these mothers put effort into the maternal role attainment. They used both external and internal resources to normalize their lives, cope with stigma and attain maternal role. In addition, an empowerment intervention programme which addressed the factors such as social support and self-esteem produced findings showing that HIV-positive mothers felt increased control over their lives, confidence in managing their HIV infection and enhanced ability to care for

their infants (Jirapaet, 2000). These findings indicated that social support and self-esteem seem to be as the key factors in promoting attainment of the maternal role in mothers with HIV infection.

In general, research findings have shown that HIV-positive mothers presented many problems during the transition to the maternal role. However, few empirical studies have focused on the factors affecting the maternal role attainment in HIV-positive mothers. Based on Mercer's theory (Mercer, 1981; Meighan, 2001), the impact of HIV-infection on health and psychosocial problems of mothers, such as depression, mother's illness, and the level of self-esteem, can affect the maternal role attainment. In addition, the infant's illnesses may also contribute to this damaging effect on maternal role attainment. Furthermore, social support as well as HIV-stigma is the environmental condition that can affect the maternal role attainment in HIV-positive mothers. The development of a structural causal model to explain the relationship among the factors affecting maternal role attainment in HIV-positive mothers is crucial to help nurses and healthcare providers to understand the direct and indirect effects of the predictor factors on maternal role attainment. Consequently, the model can guide the multidisciplinary team to provide intervention program support these mothers in attaining maternal role that further promote infant health.

Purpose of the Study

The purpose of this study is to develop and test a structural causal model of maternal role attainment in HIV-positive mothers. The hypothesized model, a model which contains several independent hypotheses and which itself is hypothesized to fit the data, is based on the Mercer's theory. The hypothesized model is used to examine relationships among selected factors including maternal health status, depression, self-esteem, infant health, social support, stigma, and maternal role attainment in Thai HIV-seropositive mothers.

Research Question

1. To what extent does stigma, and social support predict self-esteem?
2. To what extent does stigma, maternal health status, infant health status, and social support predict maternal depression?
3. To what extent does self-esteem, maternal depression, maternal health status, social support, infant health status, social support and stigma predict maternal role attainment?
4. Does the hypothesized model of maternal role attainment among HIV-positive mothers adequately fit the sample data from Thai, HIV-positive positive mothers?

Theoretical Framework

This study is based on Mercer's maternal role attainment theory, which explains maternal role attainment during the first year of an infant's life (Mercer, 1995; 1985b). This theory has been used as a theoretical framework to examine the factors influencing the maternal role attainment in diverse groups of Thai mothers such as working mothers (Phumonskul, 2000), adolescent mothers (Sooklavanawat, 1998), and mothers of low birth weight infants (Rujiraprasert, 1996). The findings of these studies showed that some factors in the Mercer's theory could predict maternal role attainment in Thai mothers. Thus, this theory has promise as an appropriate framework for this study.

Maternal role attainment

Mercer (1985b; 1986a; 1995) described maternal role attainment as the process in which the mother achieves competence in her role and integrates mothering behaviors into her established role set so that she is comfortable with her identity as a mother. Maternal role attainment is developed through four stages: the anticipatory, formal, informal, and personal stages as in order. During these stages the women progressively move toward learning the expectations of the role, following rules and directions of others, structuring the maternal role to fit herself and her infant's cues, and developing the unique role behaviors and a feeling of confidence in performing the role. The outcomes of the process show that a mother becomes attached to her infant, acquires competence in caregiving of the new infant, and expresses gratification or satisfaction in the maternal role (Mercer, 1985b; 1986a; 1995).

A mother develops attachment to her infant through identifying and interacting with her infant. The attachment process is facilitated by the reciprocal positive feedback from each other which makes for a mutually satisfying experience (Mercer, 1995, 1990). Maternal role competence refers to the mother's skill, sensitivity, empathic response, and nurturing behavior that promote the infant's health and development (Mercer, 1995). The mother expresses gratification in the maternal role through the satisfaction, enjoyment, and pleasure experienced by interaction with her infant and through fulfilling the tasks of the mothering role (Mercer, 1985a, 1986a). For most mothers, the process of maternal role attainment begins during the prenatal period and the time frame for integration of the maternal role is 3 to 10 months after birth (Mercer, 1986a, 1985b).

Mercer's maternal role attainment theory proposes that the characteristics of mother and child interact to affect the establishment of maternal role identity, and social support and stress have direct and indirect effects on the maternal role identity. The current state of knowledge illustrates that the factors affecting maternal role attainment include a mother's characteristics (e.g., health, self-esteem, depression, maturity, attitudes, pregnancy or birth experience, and role conflict); the child's characteristics (e.g., temperament, ability to give cues, appearance characteristics, and health), and environmental conditions (e.g., social support, family functioning, stress, mother-father relationship) (Koniak-Griffin, 1993; Meighan, 2001). These variables can be examined for their influence on maternal role attainment by either strength or relative form. In addition, some variables may interact with one another to facilitate or hinder the attaining maternal role attainment.

Following Mercer's theoretical framework and the studies related to the experiences of HIV-positive mothers, the hypothesized model of this study proposes relationships among factors selected from those just mentioned above and maternal role attainment. The three selected maternal characteristics are depression, self-esteem, and maternal health status; the one infant characteristic is infant health status; and the two environmental conditions are social support, and stigma (Figure 1). The reasons for the selection of these particular factors are explained in the following sections and hypotheses are developed on their relationships to maternal role attainment.

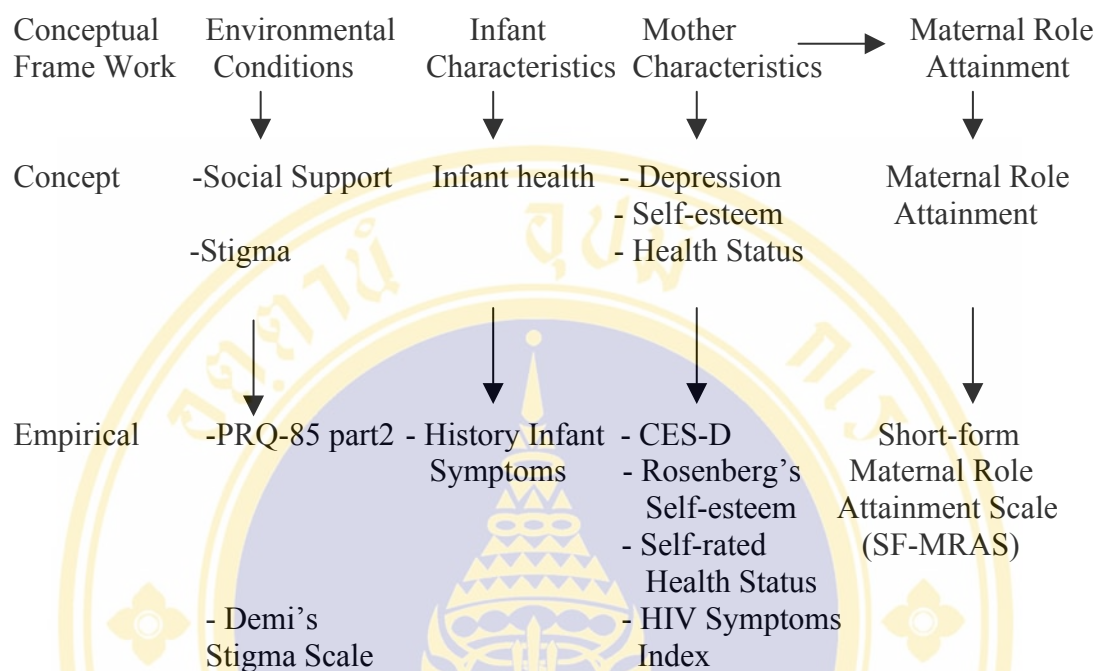


Figure 1 Conceptual Framework of Maternal Role Attainment in HIV-positive Mothers

Mother's Characteristics: Depression, Self-esteem, and Maternal Health Status

Depression

A mother, the role taker, has progressive maternal role attainment through the emotional interaction with her infant. Depression is the emotional response to stressful circumstances, and can be characterized by a group of depressive symptoms (including affective components, altered somatic symptoms, and interpersonal relationships) (Radloff, 1977). A depressed mother demonstrates less affectionate interaction with her infant (Fleming, Ruble, Flett, & Shaul, 1988), experiences a negative attitude to and low competence in parenting (Lutenbacher, & Hall, 1998; Mercer, & Fekertich, 1994), and fails to enjoy positive infant feedback (Beck, 1995; Beck, 1996b). Maternal depression has been significantly and negatively associated with maternal role attainment (Fowles, 1998).

A number of HIV-infected mothers experience high depressive symptoms during the two-year postpartum period for many reasons, such as having a chronic illness, perceived stigma and worries about the infant health (Bennetts et al., 1999;

Manopaiboon et al., 1997; Miles et al., 1997; 2001). Johnson and Lobo (2001) reported that an HIV-positive mothers who had high depressive symptoms demonstrated low maternal interaction with their infants and a lower ability to perform the maternal task. These findings indicate that maternal depression or high depressive symptoms, may have a negative effect on maternal role attainment in HIV-positive mothers.

Self-esteem

Self-esteem is the feeling that one has global self- worth and the perception that one has the ability to function adequately in life (Rosenberg, 1965; Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). In the process of maternal role attainment, self-esteem is an important internal resource, which influences the parenting attitude, and the ability to maintain one's equilibrium of oneself in a crisis situation (Mercer, 1990). A mother who feels better about herself as a mother is confident at adapting, and encouraging an infant interaction, and sensitive in responding to the infant needs, all as part of attaining the maternal role (Mercer, 1986b, 1990). Among a diversity of mothers, self-esteem has been significantly and positively associated with mother-infant attachment (Mercer, & Ferketich, 1994a), competence in taking care of the infant (Mercer, & Ferketich, 1994b; Soomlek, 1996), and maternal role attainment (Hankla, 2001; Phumonskul, 2000; Sooklavanavat, 1998).

Despite having HIV, a number of mothers reported that they felt better about themselves while they were providing care for their children (Andrew et al., 1993; Swadipanitch, Ratnagreetakul, & Netti, 1999). A study by Wantong (2002), a similar finding to the previous one, indicated that HIV-positive mothers had moderate to high self-esteem. Furthermore, an empowerment intervention program that promotes self-esteem of HIV-positive mothers increased mothers' confidence to take care of their infants and improved maternal role adaptation (Jirapraet, 2000). Given the outcomes of these studies, it can be hypothesized that self-esteem has a positive direct effect on maternal role attainment among HIV-positive mothers.

Maternal Health Status

The maternal health status refers to the illnesses or the symptoms experienced by mothers. The health status involves the energy and confidence of a mother in attaining

the maternal role (Koniak-Griffin, 1993; Meighan, 2001). With regard to HIV-infection, these mothers are at risk of progression of symptoms related to HIV while they are learning to take care of their infants. The physical interruptions by HIV in mothers may drain them of energy and turn their attention to their own health instead of the maternal role attainment process (Gottesman, 1990). The absence of HIV-related symptoms is significantly and positively associated with role functioning among HIV-infected women (Hudson, Kirksey, & Holzemer, 2004). For instance, it has been shown that HIV-positive mothers without symptoms of HIV demonstrated mother-infant attachment (Nettip et al., 1997; Salayakanon, 1997) and satisfaction in the maternal role (Sameinpetch, 1998).

Furthermore, the mother's illness is considered as a chronic stressor associated with the level of depressive symptoms in mothers of young children (Heneghan, Silver, Bauman, Westbrook, & Stein, 1998). For HIV-positive mothers, the number of physical symptoms is significantly related to high depressive symptoms (Miles et al., 1997; 2001; Semple et al., 1993;). These findings suggest that poor maternal health status indicated by symptoms related to HIV infection has a negative effect on the maternal role attainment, and has a positive effect on maternal depression (high depressive symptoms).

Infant Characteristic: Infant Health Status

Infant Health Status

The infant health refers to the illness of the infant (Mercer, 1981). The infant health affects the maternal role attainment by facilitating the emotional interaction with the mother (Mercer, 1986c; 1981; 1990). A complicated health problem or illness impairs infants' abilities to interact with their mothers, and impedes the mother-infant interaction and attachment process (Meighan, 2001; Mercer, 1990). Because of the infant illness, a mother may avoid attachment to her infant because she is afraid that the infant will die (Mercer, 1986a). In addition, the ill infant requires additional care that may threaten the mother's sense of competence. Previous evidences support this idea that the illness of an infant has a negative effect on maternal role competence (Mercer, & Ferketich, 1995), and maternal role attainment among high risk mothers (Rujiraprasert, 1996).

Despite advanced antiretroviral therapy, infants born to HIV-positive mothers are at risk of the vertical transmission of HIV, and symptoms related to the HIV

disease (Brown, & Sittitrai, 1996; Saavedra, et al., 1995). The findings show that HIV-positive mothers have satisfaction in the maternal role when they perceive their infants' health status as good (Sameinpetch, 1998). In contrast, some infants developed symptoms which cause mothers to direct more energy and time to the treatment and the needs of an infant's special care while they are adjusting to the maternal role (Semple et al., 1993; Suntararachun, 1998; Wissow, Hutton & McGraw, 1996). Thus, poor infant health status, indicated by the illness of the infant, shows a negative effect on the maternal role attainment of HIV-positive mothers.

In addition, a mother whose infant develops symptoms- whether related to HIV or not- may feel more guilty, depressed and negative towards herself (Anankunupakahn, 1996; Andrews, 1995; McGrath, & Meyer, 1992; Mercer, 1990). Worry over an infant's health is correlated to depressive symptoms among HIV-positive mothers (Miles et al., 1997). Thus, poor infant health status has a positive direct effect on maternal depression (high depressive symptoms).

Environmental Conditions: Social Support and Stigma

Social Support

Social support refers to the functional social support, which is regarded as a significant environmental factor promoting the maternal role attainment process, and buffering stress (Koniak-Griffin, 1993; Mercer, 1990, 1995). Parents need a supportive environment to facilitate learning in order to gain self-confidence, and develop love for their infants (Mercer, 1990). Social support has a positive direct effect on maternal role attainment and maternal role competence in various groups of women (Hankla, 2001; Rujiraprasert, 1996; Takka, 2003). For mothers with HIV-infection, social support has a positive correlation with the maternal role adaptation (Limruangrong, 1997). Effective social support develops a positive attitude and behavior toward parenting (Black, Nair, & Harrington, 1994), and attaining the maternal role (Jirapaet, 2001).

Regarding stress buffering, social support is viewed as a resource of mothers for coping with the HIV infection and its consequences (Andrews, 1995). Particularly, perceived social support, which is the cognitive appraisal of being reliably connected to others who will be available in times of need, helps people to cope with a stressful situation, and increases their senses of self-esteem (Cohen, & Syme, 1985). Findings

from empirical studies suggest that perceived high social support has a negative effect on depression and a positive effect on self-esteem among a diverse group of mothers (Beck, 2001; Lin, Ye, & Ensel, 1999; Logsdon & Usui, 2001; Serovich, Brucker, & Kimberly, 2000). Thus, it can be proposed that perceived high social support, the environmental factor, has a positive direct effect on maternal role attainment and self-esteem; and has a negative direct effect on maternal depression, which indicated by depressive symptoms, in HIV-positive mothers.

Stigma

Stigma is conceptualized as the awareness of actual or potential social disqualification, denial or limitation of opportunity and negative change in social identity (Berger, Ferrans, & Lashley, 2001). HIV-infected mothers view the stigma of disease as a social stress (Antle, Wellis, Goldie, DeMatteo & King, 2001), which disadvantages them during the transition to the maternal role (Gottesman, 1990). The ‘felt’ or ‘perceived’ stigma related to HIV contributes to negative feelings toward oneself, low self-esteem (Coopersmith, 1967; Fife & Wright, 2000), and high depressive symptoms (Miles et al., 1997) which have previously been identified as the factors affecting maternal role attainment. Thus, in the context of HIV, stigma is hypothesized as a social stress which has a positive direct effect on maternal depressive symptoms, and has a negative direct effect on mother’s self-esteem, and has indirect effect on maternal role attainment.

The hypothesized structural equation model of maternal role attainment in HIV-positive mothers is illustrated in Figure 2.

Hypotheses

1. Perceived stigma has a negative direct effect on self-esteem and social support has a positive direct effect on self-esteem.
2. Perceived stigma, poor maternal health status, and poor infant health status has positive direct effect on maternal depression, but social support has a negative direct effect on maternal depression.
3. Poor maternal health status, poor infant health status and maternal depression have negative direct effects on maternal role attainment, but self-esteem as well as social support has positive direct effect on maternal role attainment.

4. Perceived stigma has a negative indirect effect on maternal role attainment through maternal self-esteem and depression.
5. Poor maternal health status, and poor infant health status has a negative indirect effect on maternal role attainment through maternal depression.
6. Social support has an indirect effect on maternal role attainment through maternal self-esteem and maternal depression.

Scope of the Study

This study is based on Mercer's Maternal Role Attainment theoretical framework. A descriptive study using the methods of structural equation modeling was used to test the model of maternal role attainment and examine the relationship between the selected factors of maternal characteristics: depression, self-esteem and maternal health status; infant characteristic: infant health status; and environmental conditions: social support and stigma, and maternal role attainment in Thai HIV-positive mothers.

Definition of Terms

1. Maternal role attainment is the process in which the HIV-positive mother achieves mother-infant attachment, maternal role competence and gratification (satisfaction) in the maternal role (Mercer, 1981; 1985). Maternal role attainment is measured by the Short Form of Maternal Role Attainment Scale (SF-MRAS) which is modified from (Phumonskul, Somboonsub, & Siri wattanachoke, 2004). The SF-MRAS is composed of 24 items in 3 components: mother-infant attachment, maternal competence, and maternal role satisfaction. The greater the score, the higher the perception of maternal role attainment.
2. Depression (high depressive symptoms) is the emotional response to stressful situation characterized by a group of depressive symptoms as measured by The Center For Epidemiologic Studies Depression Scale (CES-D) (Raldoff, 1977). The CES-D consists of 20 items which refers to the frequency of symptoms during the past week prior to the assessment interview. Scores of 16 and over are indicated at risk of depression.
3. Self-esteem is the attitude about themselves of HIV-positive mothers as evaluated by Rosenberg's Self-esteem Scale, which consists of 10 items (Rosenberg, 1965). The greater the scores, the greater the global self-esteem.

4. Maternal Health Status refers to the perception of health regarding the illness or the symptoms experienced during the past 1 month prior to the assessment interview. The maternal health status is measured by (1) the global self-rating of health (Ware, Nelson, Sherbourne & Stewart, 1992), and (2) HIV Symptom Index (Whalen, Antani, Carey & Landefeld, 1994). A greater score means a poorer health status.

5. Infant health status refers to the infant illnesses during the past 3 months Prior to the assessment interview as evaluated by the frequency of infant illness perceived by mothers (Sutachayanon, 1998). The greater the score, the more frequent the illness experienced by the infant, which is indicated as poor health status.

6. Social support refers to the functional support perceived by HIV-positive mothers as measured by the Personal Resource Questionnaire 85 (PRQ85) part2 (Weinert, & Brandt, 1987), which consists of 5 domains: intimacy, nurturant, self worth, social integration, and assistant and guidance. The greater the scores, the greater the social support available to HIV-positive mothers.

7. Stigma refers to the perception of HIV-related stigma in HIV-positive mother, which is measured by Demi's HIV- Stigma Scale (Demi, Bakeman, Sowell & Moneyham, 2001). The higher scores mean greater perception of stigmatization because of HIV.

Benefits

1. This study provides a basic knowledge base to explain and predict the phenomena of maternal role attainment among HIV-positive mothers.

2. The findings provide a scientifically-based guideline for health care providers, multidisciplinary teams and policy makers to provide suitable support and guidance to promote maternal role attainment among these mothers in order to promote infant growth and development.

3. This research contributes to the body of knowledge concerning the Mercer's maternal role attainment theory. The findings test the validity of Mercer's theory, and explain the relationship of the relevant aspects of the theory in the phenomena of HIV-positive mothers.

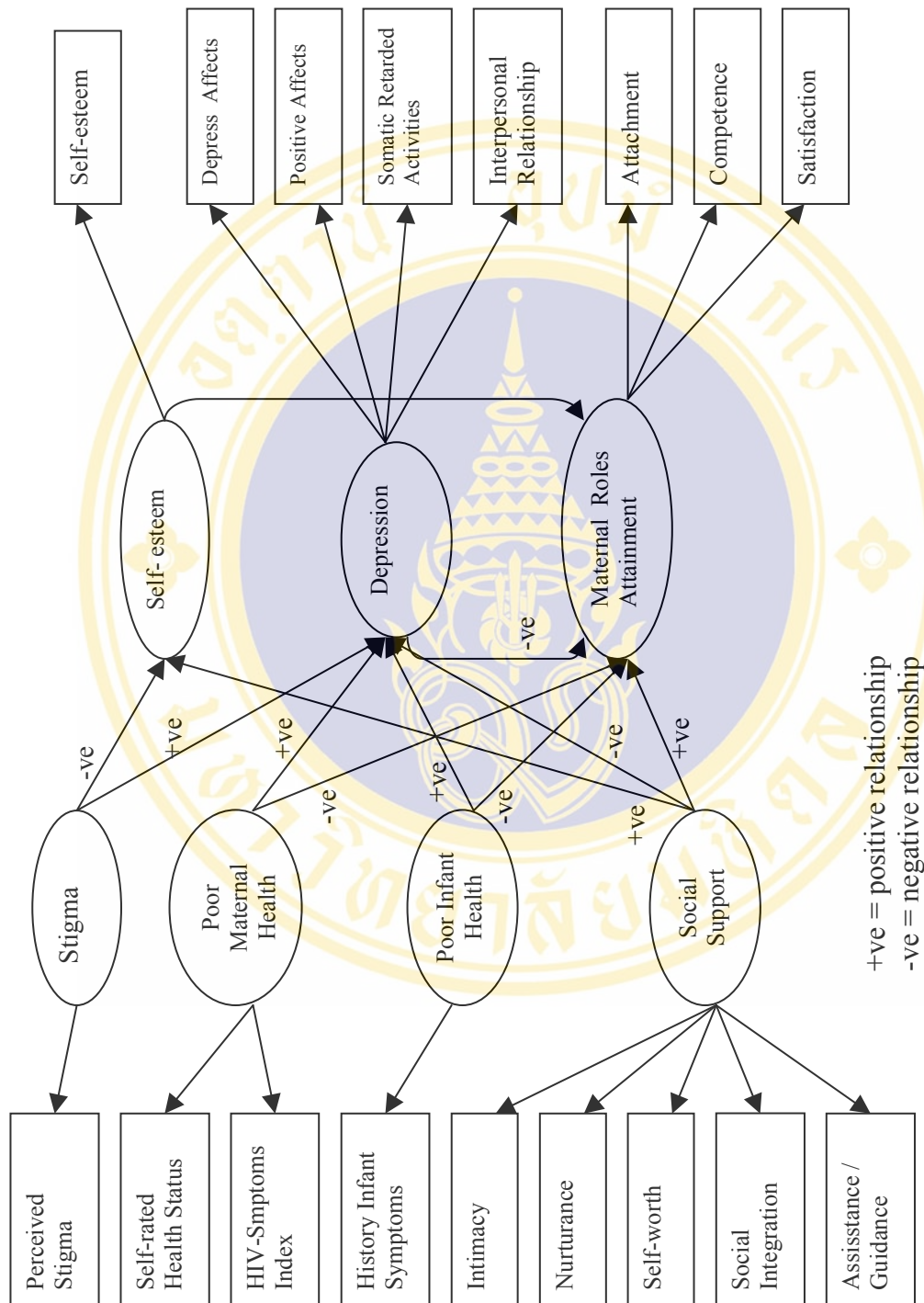


Figure 2 A Hypothesized Model of Maternal Role Attainment in HIV-positive Mothers

CHAPTER II

LITERATURE REVIEW

Based on Mercer's theory of maternal role attainment, this study focuses on the relationship among the selected factors of maternal characteristics: depression, self-esteem, and health status; infants characteristic: infant health; and environmental conditions: social support, and stigma; and maternal role attainment in HIV-positive biological mothers. The review of literature has subsections related to (a) an overview of the experiences of the mother in the context of having HIV; (b) a description of the theory of maternal role attainment followed by a description of maternal role attainment among HIV-positive mothers; and (c) the factors hypothesized to influence maternal role attainment in HIV-infected mothers.

The Experiences of the Mother in the Context of Having HIV

With advancing medical treatment and the improvement in the health care system, the transmission of HIV from mother to child is decreasing. However, a number of studies illustrated that HIV-infected mothers face many problems including the symptoms related to HIV, emotional responses, and social problems, particularly the stigmatization of the disease (Antle et al., 2001; Sandelowski, & Barroso, 2003). Antle and colleaugh (2001) studied the experiences of 105 parents—77 of them were biological mothers who were infected with HIV/AIDS and cared for children ranging in age from three months to fifteen years. These parents revealed that they struggled with emotional distress, and stress related to the stigma of HIV, while they were taking care of their children. Faithfull (1997) interviewed 12 HIV-positive mothers who were being treated at an AIDS clinic. These mothers revealed that they feared infecting children through casual contact, and believed they had less ability to raise their children—whether infant or adult children. In addition some mothers struggled with depression and anxiety regarding their illness. They feared disclosing the HIV diagnosis to others, because the HIV-related stigma could lead to isolation and lack of social support. Regan-Kubinski and Sharts-Hopko (1995) interviewed 38 mothers who

had an HIV-infection. They reported that these mothers viewed having children as creating a great motivation to stay healthy and change their lifestyles in order to live as long as they possibly could so that they could take care of their children. Nevertheless, they encountered multiple problems involving the stigma of HIV-disease, and seeking additional support. In addition, Andrew and colleaugh (1993) interviewed 125 HIV-positive mothers to understand their experiences. From content analysis, they reported that these mothers perceived the relationship with their children as burdensome. As well as the challenges of childcare, they had the additional burden of observing for HIV/ AIDS symptoms, especially in a sick child. In addition, they struggled with the social stigma of HIV/ AIDS and this intensified their worry and anxiety about the symptoms of the HIV-disease.

Pichaipat (2000) interviewed 53 Thai, HIV-positive mothers whose infants had follow up check at hospitals. These mothers revealed that they experienced anxiety and faced psychological problems because they tried to keep their illness secret. Similarly, Thampanichawat (1999) interviewed 30 HIV-infected mothers with young children. These mothers perceived HIV/ AIDS as a stigmatized disease, which was leading them to live with secrecy. They were drained of energy either from working toward the decision of disclosing the HIV diagnosis or from maintaining the secrecy about their HIV disease.

The experiences of HIV-positive mothers illustrated that they viewed their children as a great motivation to live. However, they encounter with a number of problems including HIV-related stigma, emotional distress and paucity of social support. In addition, HIV-positive mothers are very concerned with the transmission of HIV to their children. These mothers may be drained of energy coping with these overwhelming problems instead of taking care of their children and attaining the maternal role.

Maternal Role Attainment Theory

Maternal role attainment (MRA) is described as the process by which the mother becomes attached to her infant, acquires competence in care giving to the new infant, expresses gratification or satisfaction in the maternal role, and integrates mothering

behaviors into an established role set so that she feels comfortable and confident with her identity as a mother (Mercer, 1981; 1985b; 1995).

In attaining the maternal role, maternal attachment refers to a process in which a mother develops an affection bond to a specific child. A mother develops attachment to her infant through identifying that the child is hers, and interacting with the infant. This process is facilitated by positive feedback to each other through a mutually satisfying experience (Mercer, 1995). The progressions of emotional and cognitive changes occur in both mother and infant, over time. With the affection bond, the mother accepts responsibility for the dependent child's care and places the child's needs above her own. The infant derives warmth and security from the mother.

Maternal role competence includes the mother's skill, sensitivity, empathic responses, and nurturing behaviors that promote the infant health and development (Mercer, 1995). The mother integrates the parenting role with other roles over a period of time until she is pleased with the new identity and responsibilities (Mercer, 1981; 1986a). Gratification or satisfaction in the maternal role results from the enjoyment, reward and pleasure that a woman experiences in interaction with her infant and fulfilling the tasks of the role (Mercer, 1985a).

With most women, the transition to the maternal role begins during pregnancy, and the internalized role is completed before the end of the first postpartum year (Mercer, 1986b; Mercer, 1985b). In maternal role attainment, a woman moves progressively through four stages: the anticipatory, formal, informal, and personal stages. The anticipatory stage begins during pregnancy with the woman's acceptance of the fetus as a separate individual, fantasies about the new baby, and exploring her expectations of the mother's role by seeking information from others in the role and visualizing herself as a mother. At the birth of the infant, the mother actually moves into the formal stage by learning from professionals and from observing other mothers in her social system. The mother moves into the informal stage during the first month of motherhood as she structures the maternal role to fit herself based on her past experiences, her infant's cues, and future goals to develop her own unique style of mothering. In the personal stage, the mother integrates the maternal role into her self-system with a congruence of self and other roles. In this stage, the woman secures her identity as a mother, commits to her infant, and feels a sense of harmony, satisfaction,

and competence in the role. The time frame of the maternal role integration is about 3 to 10 months into the postnatal period (Mercer, 1985b).

Maternal role attainment, a cognitive and social process, is influenced by the characteristics of the mother and child, as well as their environmental context (Mercer, 1981; 1995). In the current state of knowledge, Koniak-Griffin (1993) illustrated that these maternal characteristics include age, marital status, parenting confidence, perceptions of birth experience, psychological state of the mother and personality trait (e.g., self-concept, depression, self-esteem), role conflict and role strain. The key infant's characteristics include infant temperament or behavior and infant health status. The environmental conditions that may affect role attainment are social support and stress. Mercer (1981) hypothesized that these factors may interact with one another to facilitate or hinder role attainment.

A number of studies focusing on the maternal role attainment among healthy mothers and infants are based on Mercer's theoretical frameworks. Leesen (2000) studied the relationship between the selected factors of age, family income, type of delivery, infant health status, social support from grandmother, and maternal role attainment among 150 first time mothers at 4 to 8 weeks postpartum. The finding showed that social support was significantly positively correlated with maternal role attainment ($r = .39, p < .01$), whereas the other factors did not correlate with maternal role attainment. Social support explained 15.2 % of the variance of maternal role attainment. Hankla (2001) studied maternal role performance including maternal attachment, competence and satisfaction among 210 mothers at the 6-weeks postpartum period. Self-esteem, social support, and infant's behavior correlated significantly the maternal role attainment ($r = .21, p < .01$; $.20, p < .01$; and $-.21, p < .01$, respectively). All three variables explained 11% of variance of maternal role attainment. The other variables such as age, education, and childrearing experience were not significantly correlated with maternal role attainment.

Similarly, Sookkavanawat (1998) reported that self-esteem, and newborn behavior, were significantly correlated with maternal role attainment ($r = .24, p < .001$; $r = .36, p < .001$, respectively) among 150 adolescent mothers at 4-6 weeks post partum. In the study of testing a causal relationship model, Phumonskul (2000) tested the relationship among the selected factors including working condition, social

support, marital relationship, infant characteristics (the infant's emotional and behavioral characteristics), self-esteem and maternal role attainment among 390 working mothers. The findings showed that self-esteem ($b = 1.89, p < .05$) and infant characteristics ($b = .81, p < .05$) had a positive direct effect on maternal role attainment.

These findings present the evidence that the factors including environmental conditions such as social support; the maternal characteristics: maternal self-esteem and the infant behavior are associated with maternal role attainment among healthy mothers.

Infant health condition showed significant association with maternal role attainment in the mothers whose infant had complications. Rujiraprasert (1996) studied the relationship between social support, infant health condition, and selected factors including mother's age, education of mother, family income, childrearing experience, mother's participation in caring for the infant during hospitalization, and maternal role attainment in 140 mothers of infants with low birth weight. The findings showed that an infant health condition was negatively correlated with maternal role attainment ($r = -.22, p < .05$). The infant health condition significantly accounted for 4.03% of variance in the maternal role attainment.

As shown by these findings, the infant characteristics including infant's behavior and infant health condition are associated with maternal role attainment. However, the infant health status is negatively correlated to maternal role attainment when the infants have serious health conditions.

Maternal Role Attainment and Mother with HIV Infection

In the context of HIV-infection, evidences suggest that mothers with HIV work towards self-preservation as a mother to protect their children from the illness and HIV stigma (Sandelowski & Barroso, 2003). Jirapaet (2001) interviewed 39 HIV-infected mothers who achieved maternal role attainment as indicated by the Maternal Behavioral Questionnaire. The content analysis indicated the factors that affected the maternal role attainment included (1) wanting to live in order to help the infant, (2) keeping secret their HIV status, (3) wanting to feel of normal, (4) having good quality of social support, (5) having hope for HIV cure, and (6) receiving accessible health service. These mothers used internal resources such as a palliative coping style (concealing their HIV-status, and living as normal) to control stress, confront the

stigma, and protect themselves and their infants. Social support is the important external resource that aids coping while mothers are attaining the maternal role.

Salayakanon (1997) studied mother-newborn attachment in HIV-seropositive mothers. The findings indicated that HIV-positive mothers had a good attachment to their newborns (Mean = 4.1 from 5). The factors of poor economic status, marital satisfaction, the order of pregnancy and low educational level were negatively associated with the maternal-newborn attachment. These factors served them to seek information and deal with stressful situations. Similarly, Nettip and colleagues (1997) reported that HIV-positive mothers had a high maternal attachment with their infants at the early postpartum period. The mean score of maternal attachment in HIV-positive mothers was not different from that in HIV-negative mother. However, the mean score of maternal attachment of HIV-positive mothers at one month was significantly lower than that for HIV-negative mothers, ($p < .05$). These HIV-positive mothers encountered many stressors such as their own illness, side effects of medication, and low socioeconomic status. These two studies demonstrate that the maternal attachment of HIV-positive mothers seems to be at risk after the postpartum period. However, the investigators did not attempt to investigate the factors influencing the maternal attachment among these mothers.

Samienpetch (1998) studied role stress and role satisfaction among Thai HIV-positive mothers. The finding showed that these mothers were satisfied in their maternal role. Maternal health and child health were correlated with role satisfaction. The result of this study suggests that both the maternal health and child health are important factors encouraging these mothers to rear their children.

In testing the model of maternal role attainment among the mothers with HIV, Santacroce (1997) examined the relationships among social support, uncertainty and maternal role attainment in a convenience sample of 25 impoverished urban HIV seropositive mothers. The structural model showed that social support and uncertainty were not significantly related to maternal role attainment. However, these results may have resulted from the small sample size that should be considered in further study.

In summary, the previous findings show that HIV-positive mothers place a high value on their children and maternal role despite the fact that the HIV disease threatens their own health and psychosocial condition. These mothers use both external and

internal resource to attain their maternal role. On the other hand, some HIV-positive mothers struggle with maternal attachment, a component of maternal role attainment.

Given the at-risk nature of maternal role attainment by mothers with HIV, factors that are related to the context of mothers with HIV infection and relevant to the factors previously identified as affecting maternal role attainment need to be investigated further.

Factors Influencing Maternal Role Attainment in HIV-positive Mothers

The conceptual framework of this study is based on Mercer's maternal role attainment theory (1981; 1990; 1995), and researches related to maternal role attainment. The selected factors which affect maternal role attainment in this study include three maternal characteristics: depression, self-esteem, and health status; one infant characteristic: infant health status; and two environmental conditions: social support and stigma.

Depression

Because some of the characteristics HIV disease is that it is chronic, contagious and fatal, people living with HIV commonly experience a high number of depressive symptoms indicating at risk of depression (Jones, Beach, Forehand, & The Family Health Project Research, 2001; Miles et al., 1997; Moneyham et al., 2000; Valente, 2003). HIV-positive mothers who have given birth are at risk of both postnatal depression, which occurs following childbirth, at 6 weeks, and depression that accompanies the HIV diagnosis. Miles and her colleagues (2001) conducted a longitudinal study to examine the mental health of 34 African-American mothers during the 2-year period following birth (Miles et al., 2001). The results indicated that a number of mothers had high depressive symptoms – as measured by the Center for Epidemiological Studies Depression Scale (CES-D) - at each time point after birth of the infant: at 3 months (41%), 6 months (45%), 12 months (39%), 18 months (30%) and 24 months (32%). In addition, the factors that correlated with high depressive symptoms among HIV-positive mothers were feelings of stigma ($r = .50, p < .001$), self-perception of health ($r = .63, p < .001$), physical symptoms ($r = .56, p < .001$), and worry about the baby ($r = .33, p < .05$) (Miles et al., 1997). Although these studies should be interpreted cautiously considering their small samples, their longitudinal

designs enable a powerful depiction of the emotional responses among HIV-positive mothers during the first year postpartum, the critical time for maternal role attainment.

Similarly, Manopaiboon and colleagues (1998) reported that 43% of 129 Thai, HIV-positive mothers had high depressive symptoms (indicated by the CES-D) during the 2 year-period after having given birth. These mothers manifested many stressors such as a partner's illness or death, family disruption, and low family income. From multivariate logistic regression analysis, it was shown that high depressive symptom scores were associated with those who were no longer in a relationship with their partner (OR = 5.72, CI = 2.18-14.97) and who used venting coping (expressing one's emotions or letting one's feelings out) or emotion-focused coping strategies rather than problem-focused coping (OR = 2.15, CI = 1.44-3.21) (Benetts et al, 1999).

These findings have consistency shown that HIV-positive mothers are at a high risk of depression, particularly during 1 to 2 years following birth, which is the critical period for learning to take care of an infant and attaining a maternal role (Mercer, 1995).

Depressive symptoms and maternal role attainment

Since a mother constitutes the infant's primary social environment, a mother's depressive mood has an adverse effect on the maternal-infant relationship, and has an inverse relationship with maternal role attainment (Beck, 1995; 1996; Mercer & Ferketich, 1994b; 1995). Mercer and Fekertich (1994b) reported the negative effects of maternal depressive symptoms on maternal role competence, a component of maternal role attainment, in high risk mothers at 1 month ($\beta = -.49, p < .0001$), and at 8 months ($\beta = -.35, p < .0001$) after giving birth. It explained 24% of variance in maternal role competence of high risk mothers at 1 month ($R^2 = .24, p < .001$) and 9 percent at 8 months ($R^2 = .09, p < .001$). For low-risk mothers, the maternal depressive symptoms had a significant negative effect on the maternal role competence at 1 month ($\beta = -.28, p < .0001$) and predicted 6% of variance in maternal competence ($R^2 = .06, p < .001$). As a result, maternal depressive symptoms explained more variance in maternal role competence of high risk mothers than in low risk mothers at 1 month (24% vs 6%) and continued to have an effect on maternal competence of high risk mothers at 8 months.

In addition, the high depressive symptoms were negatively related to maternal competence at early postpartum in hospital ($\beta = -.19, p < .05$) in experienced mothers, and at 1 month in inexperienced mothers ($\beta = -.31, p < .0001$) (Mercer, & Fekertich, 1995). Fowles (1996) examined the relationship between postpartum depression, and subsequent perceptions of maternal role attainment at 3 months after giving birth among 136 primiparous women. Research findings showed that postpartum depression was significantly negative related to all components of maternal role attainment (attachment $\beta = -.30$; competence $\beta = -.21$; satisfaction $\beta = -.19$). However, this study did not include the other characteristics of mothers and infants, or the environmental factors.

According to some studies, HIV-positive mothers who had high levels of stress had less ability to perform maternal tasks (Murphy, Marelich, Dello Stritto, Swendeman & Witkin, 2002; Suntararachun, 1998). Given the concern over high levels of depressive symptoms among HIV-infected mothers, Johnson and Lobo (2001) reported that HIV-infected mothers who experience moderate levels of depression have less interaction with their children.

These findings provide consistent evidence of a relationship between maternal depressive symptoms and maternal role attainment. In addition, its effects tend to be higher in high risk mothers than low risk mothers. Furthermore, the literature illustrates that a number of HIV-positive mothers had high depressive symptoms during the first year postpartum after giving birth, the critical period for developing maternal role attainment. However, there has been little study focusing on the effect of maternal depression and maternal role attainment among HIV-positive mothers.

Self-esteem

Self-esteem, the affective component of self, refers to an individual's overall positive evaluation of self (Rosenberge, 1965; Rosenberg et al., 1995). The evaluation or esteem of oneself is a learning process based on the interaction of the individual with the social environment including family and significant others, across their lifespan (Coopersmith, 1967). Thus, self-esteem that is developed through early life experiences is basic self-esteem and it evolves through the evaluation of interactions with others. The construct of self-esteem, including both a cognitive evaluation process and an affective value (such as pride, shame) about the self, presents the

direction, either positive or negative, and intensity of opinion towards the self (Rosenberg et al., 1995). The direction of self-esteem depends upon the relationship between the “ideal self” and the “actual self”, perceptions, and evaluations. The smaller the gap between the “ideal self” and the “actual self” gives a higher self-esteem.

Among HIV-positive individuals, HIV infection may bring perceived low self-esteem because of the stigmatization of disease, isolation, and possibly the loss of relationships with others (Hackl et al., 1999). Sharts-Hopko and colleague (1996) reported that young mothers who had AIDS and faced leaving a child had lowered feelings of self-esteem (Sharts-Hopko et al., 1996). On the other hand, HIV-positive women believed that having a child gave them a purpose in life (Wesley et al., 2000). A number of studies indicated that HIV-positive mothers felt better about themselves while they were providing care for their infants (Swadipanitch, et al., 1999) and viewed having a child as a significant affirmation of their identity and a source of self-esteem (Andrew, et al., 1993; Ingram & Hutchinson, 1999; Sandelowski & Barroso, 2003). Wanthong (2002) studied self-esteem, concern, and quality of life among Thai, HIV-positive mothers who had 6 to 12 month old infants. The findings showed that the majority of the sample (82%) had high levels of self-esteem and that self-esteem had a positive correlation with quality of life ($r = .59, p < .01$).

Self-esteem and maternal role attainment

Self-esteem is the internal resource, which not only influences but also potentially mediates the effects of factors on maternal role attainment (McGrath, & Meyer, 1992; Mercer, 1990). Self-esteem has been consistently correlated with maternal role attainment among various groups: first time mothers (Hankla, 2001); and working mothers (Phumonskul, 2000). In the study by Phumonskul (2000), the finding showed that self-esteem had positive direct effect on maternal role attainment ($b = 1.89, p < .05$). In addition, perceived high social support had positive direct effect on self-esteem ($b = .81, p < .05$). In addition, self-esteem has a positive relate to maternal role competence and maternal attachment, the component of maternal role attainment (Mercer & Fekertich, 1994b; 1994a; 1995). In studies of the maternal role competence, the findings have shown that self-esteem affected maternal role

competence among high-risk mothers and low risk mothers during 1 year postpartum period (Mercer & Ferketich, 1994b).

Regarding the experienced mothers, self-esteem affected the maternal role competence at 4-month ($R^2 = .31, p < .001$), and at 8-month post partum period ($R^2 = .34, p < .001$), (Mercer & Ferketich, 1995). In addition, self-esteem had an effect on maternal attachment at 4-month ($R^2 = .16, p < .001$) and at 8-month postpartum period ($R^2 = .26, p < .001$) (Mercer & Ferketich, 1994a). These findings indicate that self-esteem is a consisting predictor of maternal role attainment, maternal competence, and maternal-infant attachment.

Soomlek (1995) tested a causal model of maternal role mastery among 205 first time mothers. In the tested model, self-esteem had a positive direct effect on mother's sense of competence ($\beta = .27, p < .01$). In addition, social support had a positive direct effect on self-esteem ($\beta = .37, p < .01$). Those findings support the evidence that self-esteem has a positive direct effect on the maternal role attainment among diverse groups of mothers. In addition, self-esteem mediates the effect of social support on the maternal role attainment.

Using the empowerment process, Jirapaet (2000) implemented an intervention to empower HIV-positive mother to improve maternal role adaptation in Thai HIV-positive mothers. The finding showed that HIV-positive mothers in the intervention group had better maternal role adaptation than the mothers in control group. The results concluded that the intervention improving self-esteem could help HIV-positive mothers sustain meaningful connections to their children and families.

Thus, the previous findings support the evidences that self-esteem is a predictor of maternal role attainment. HIV-positive mothers with high self-esteem can cope with the overwhelm situation during parenting their infants, and achieve maternal role attainment.

Maternal Health Status

Like other long-term and chronic illnesses, HIV/ AIDS has the symptoms that occur early and persist throughout the disease trajectory. HIV infection leads to an inevitable decline in cellular immune response (Enger et al., 1996). The manifestations of HIV disease are directly related to the degree of CD4 cell count. A person who has an HIV- infection will lose an average of 200-300/ mm^3 CD4 cells in the first year

after infection, followed by an average decline of 50-80/ mm³ in each subsequent year. When the CD4 cell count is less than 200/ mm³, opportunistic infections will develop..

Although the evidence of the effect of pregnancy on the severity of HIV illness has not been reported, HIV-positive mothers are at risk of the unpredictable course of HIV including asymptomatic periods, opportunistic infections, and HIV/AIDS symptoms (Enger et al., 1996; Ferrai et al., 1993). Kaewsuk and colleauge (1997) studied the complication of 370 HIV-infected mothers. They reported that HIV-positive mothers had significantly more complications during the pregnancy and postpartum-period than HIV-negative mothers significantly ($p < 0.01$). The major complications were anemia, syphilis, and obstetrical complications (Kaewsuk, Sukomol, Gunjana, & Oamkul, 1997). Miles and colleagues (2001) reported that up to 64 % of African-American mothers with HIV-infection experienced physical symptoms over 24 months postpartum (Miles, et al., 2001). The most common health problems were related to infections, cognitive impairment (problems with thinking and remembering), low energy level, and gynecological problems, weight loss, and fevers.

Thus, HIV-infected mothers are at high risk for the symptoms of HIV-infection, other opportunistic infections, and obstetric complications.

Maternal health status and maternal role attainment

The symptoms, whether chronic or severe, may drain the mothers' energy and attention for raising their infants (Mercer, 1986a). In studies on the predictors of maternal competence of first-time mothers when the infant was 8 months old, Takka (2003) reported that the maternal health correlated with maternal role competence, the component of maternal role attainment, at this time ($r = 0.53, p < .001$) and accounted for 14% of variance in maternal competence ($R^2 = .14, p < .05$). Sandelowski and Barroso (2003) used the metasummary and metasynthesis techniques to integrate the findings pertaining to motherhood in 56 reports of qualitative studies conducted with HIV-positive women. The results showed that the mother's health was regarded as a factor influencing the maternal work for preservation of maternal identity. HIV-positive women were more easily able to preserve the maternal identity when they were not ill.

A study of the quality of life among HIV-infected women (118 women) showed that HIV-positive women experienced the symptoms including muscle aches,

depression, thirstiness, weakness, fear/ worries, difficulty in concentrating, memory loss and painful joints (Hudson et al., 2004). The number of symptoms had a significant effect on role functioning significantly ($\beta = -.61, p < .01$), and accounted 25 % of variance in role functioning. As the primary caregivers of infants, HIV-positive mothers who experienced symptoms at moderate to severe intensity may have a reduced ability to attain the maternal role.

Samientpetch (1998) conducted the study on the factors related to maternal role stress and role satisfaction among 100 HIV-positive mothers. The finding demonstrated that the maternal role satisfaction, a component of maternal role attainment, was positively correlated with good health of the mother ($r = .29, p < .01$).

Those findings support the evidences that HIV-positive mothers are at risk of the HIV-related symptoms. The number of symptoms has an effect on the role function, role stress, and maternal role satisfaction.

Maternal health status and depression in HIV-positive mothers

The mother's illness affects the maternal depressive mood (Lewis & Hammond, 1996). A number of research finding have demonstrated that physical symptoms (rather than the stage of disease) are correlated with depression among HIV-infected persons (Belkin et al., 1992; Miles et al., 1997; Wood, Haberman & Packard, 1993;). Belkin and colleagues investigated the relationship between physical symptoms and depressive symptoms among 881 individuals with HIV infection (Belkin et al., 1992). They found that 42.3 % of respondents scored above the cutoff on the depression screener (RAND depression scale), which indicated a high risk for depression. The depression screener score was related to physical symptoms among HIV-infection patients ($r = .30; p < .05$). In addition, Moneyham and colleagues (2000) reported that HIV symptoms were significantly correlated with depressive symptoms ($r = .46, p < .01$) (Moneyham, Sowell, Seals & Demi, 2000). The physical symptoms were troublesome as signs of HIV-disease progression that led HIV-positive mothers to feel that they were helpless and had no control over the symptoms or course of the illness (Gray, 1999). Given the particular concern of HIV-infected mothers, Miles and colleagues reported that the physical symptoms and health perception were significantly and highly correlated with depressive symptoms over across-time at 3, 6, 12 months postpartum (r ranged .59 to .63 respectively) (Miles et al., 2001). The greater of

depressive symptoms were associated with a perception of poor health and a high number of physical symptoms. Using hierarchical linear modeling regression, the physical symptoms, and self-perception of health were found to be the best predictors of depressive symptoms in mothers with HIV-infection (Miles et al., 1997).

The findings of those studies support the evidence of the relationship between the maternal health status particularly physical symptoms and the perception of health, and maternal depression among HIV-positive mothers.

Infant Health Status

The infants born to HIV positive mother are at risk for vertical transmission through intrauterine exposure to HIV, intra-partum contact with infected maternal blood, and consumption of HIV infected breast milk (Boland, Rothpletz-Puglia & Oleske, 1999; Cohen, 1993; Hutton, 1996). Although AZT can reduce the rate of vertical transmission by two-thirds, about 20 per cent of infected children develop serious disease in the first year of life; 80 percent have a slower rate of disease progression. The median age of onset of symptoms for infants with perinatal acquired HIV infection is between 5 to 10 months (Hutton, 1996). The manifestations of HIV disease in children include chronic infections, diseases of vital organs and malignancies. Infants may have repeated diaper rashes, diarrhea, pneumonias, blood infections, urinary tract infections, and infections in ear, mouth and throat. Bacterial infections can cause seizures, fever, pneumonia, recurrent colds and diarrhea. The presence of these symptoms raises the suspicion of the risk of HIV infection, leading mothers to worry about their infants' lives.

Mingcharoen (1999) conducted the study of the development of children aged 12 to 36 months born to Thai, HIV-positive mothers. The finding showed that the group of HIV infected children had experienced illness at least once a month. The illnesses of the infants born to HIV-positive mothers included fever, diarrhea, cold, pneumonia, infection in the mouth and throat, otitis, and skin rashes (Sutachayanon, 1998). Similarly, Kuntana and colleague (2002) reported that 110 infants born to HIV-positive mothers had illnesses during the period of 1-12 months of age (Kuntana, Chontawan, & Lamchang, 2002). In addition, the frequency of illness was 1-3 times a month, and 74% of these infants had been admitted to hospital ranged 1 to 3 times in

that period. The common illnesses of children aged 1-5 years were fever, diarrhea, and pneumonia (Tosilakul, Yimyam, & Lamchang, 2002).

Those studies support the evidence that infants born to HIV-positive mothers are at risk of unpredictable illness and HIV-symptoms.

Infant health status and maternal role attainment in HIV-positive mothers

The infant influences maternal role attainment by having a positive reciprocal interaction with its mother. The infant illness may affect maternal role attainment including maternal attachment and maternal sense of competence (Mercer, 1986a). In maternal attachment, the infant's illness may interfere with the infant's ability to respond or interact with the mother (Mercer, 1981; 1986b). The mothers of infants with serious health problems may be reluctant to begin the transition to a maternal role because they fear that the infant may die (Mercer, 1981). In addition, the ill infant requires additional care and may threaten the mother's sense of competence. Regarding the effect of the infant health status, Miles and colleagues (1999) studied maternal role attainment among mothers with a medically fragile infant following the infant's discharge from hospital until 16 months adjusted age (Miles, Holditch-Davis, Burchinal & Nelson, 1999). The findings showed that when the infant's illness provoked a technological dependence i.e. to complicated technology such as a respirator, it was significantly negatively associated to a mother's involvement and a mother's perception of ability to read the baby's cues. In addition, Rujiraprasert (1996) reported that the infant health was negatively related to maternal role attainment ($\beta = -.20, p < .05$). An infant health condition involved the confidence and satisfaction of mothers in taking care of their infants.

However, some study reported that infant health status have not shown a significant statistical association with the maternal role attainment if the infant health problems were not serious (Leesen, 2000). These mother-infant dyads can develop the attachment between each other during the early postpartum period. This evidence supports the notion that there will be a significant relationship between infant health and maternal role attainment when the infants have a chronic illness or one that is a threat to their lives.

Since all infants born to women with HIV-infection are HIV antibody seropositive at birth and whether they have HIV infection will not be known for 15 to

18 months (Brown & Sittitrai, 1996), HIV-infected mothers experienced uncertainty about HIV-transmission to their infants. In addition, their infants are at risk for unpredictable physical symptoms. Thus, HIV-positive mothers may direct more energy and time to monitoring the infant's symptoms, treatment, and the need for special care for their infants while they are adjusting to their role as mothers (Semple et al., 1993; Suntarachun, 1998; Wissow et al., 1996). HIV status of child is a condition influenced maternal work in HIV-positive mothers (Sandelowski & Barroso, 2003). In a study conducted in 100 HIV-positive mothers with young infants, Sameinpetch (1998) reported that the maternal role satisfaction (a component of maternal role attainment) was correlated with the good health of infants ($r = .29$, $p < .01$).

Regarding HIV-infection as a chronic illness, the infant health status seems to be a factor influencing maternal role attainment among HIV-positive mothers. However, the study by Sameinpetch (1998) focused on only one component of maternal role attainment that is maternal role satisfaction. The further study is needed to extend the knowledge on the effect of infant health status to all components of maternal role attainment.

Infant health status and maternal depression in HIV-positive mothers

Since the greatest concern of HIV-positive mothers is the HIV-status of their infants, the uncertainty about the transmission of HIV to the infant will persist as a chronic stressor until the child reaches an age when it is possible to establish their HIV status (Semple et al., 1993). From qualitative studies, it has been found that HIV-positive mothers fear that their infants will get HIV-infection through causal contact such as cuddling (Faithful, 1997) and that their biggest concern is the infant health (Antle et al., 2001; Wesley et al., 2000). Signs and symptoms of infants - regardless of HIV disease whether or not they were related to HIV disease - caused these mothers to feel more worried, guilty, depressed and feel negative about themselves (Anankunnupakahn, 1996; Andrew, 1995; Weiss & Chen, 2002). Wiener and colleagues (1994) studied the psychological adaptation of 101 parents of HIV-infected children, 79% of them were women and the rest were males. The health status of child was defined by the disease progression (rated in term of mild symptoms, frequent infection without hospitalization, frequent infection/ infrequent hospitalization, and

serious infection/progressive disease) and by the child's degree of debilitation (normal sleep/ activities, slight lethargy, lethargy, extreme debilitation) (Wiener, Theut, Steinberg, Riekert & Pizzo, 1994). The findings indicated that these parents experienced high depressive symptoms during the period that their children had frequent symptoms but no hospitalization, because they recognized the definite changes in their children's health and they paid attention to observe the repeated or chronic infections of their children at home. Once their children required the hospitalization, they felt relieved that the child's symptoms were no being addressed and the burden of caring for their children was transferred to the health care provider. In addition, when their children were extremely debilitated, these parents begin to accept that the child would die. However, there are limitations in the sample size of this study, which should address in further studies.

Because of the unpredictability of their infant health, a HIV-positive mother has high worries about the infant health. HIV-positive mothers may have high depressive symptoms when their infants had more frequent illnesses or the symptoms of HIV disease. Thus the features of infant health are associated with the maternal depression in HIV-positive mothers.

Social Support

By and large, social support is defined in terms of the availability of people whom the individual trusts, on whom he can rely, and who make him feel cared for and valued as a person (McDowell & Newell, 1996). In the literature, the social support is presented through a number of definitions and ways of measuring (Hupcey, 1998; Callaghan & Morrissey, 1993; Hutchison, 1999). The operational definition of social support has been classified as social embeddedness, perceived support and received support (Stewart, 1993). Perceived support refers to the perception of the availability of support when it is needed, the cognitive appraisal of its adequacy, and the quality of such support, whereas the received support or actual support refers to the nature and frequency of specific support transactions (Lin, Ye & Ensel, 1999). Perceived support can increase an overall positive effect and elevate a sense of self-esteem, stability and control over the environment (Cohen & Syme, 1985). In addition, perceived social support is important because the perception of having support that would be available is comforting mental health (Serovich, Kemberly, Mosack &

Lewis, 2001). The attributes of social support consist of emotional, instrumental, informational, and appraisal support (Langford, Bowsher, Maloney & Lillis, 1997).

Emotional support is defined in various aspects such as the provision of caring love and trust (House, 1981), and affective assistance (Kahn & Antonucci, 1980). House (1981) addressed the emotional as the most important category through which the perception of support that is conveyed to others. Instrumental support has been defined as the provision of tangible goods and services or aids (House, 1981; Tilden, & Weinert, 1987). Informational support is referred as the information, guidance and advice provided to another for solving the problems of stress (House, 1981). Appraisal support involves the communication of information or the appropriateness of acts or statements, which are relevant to self-evaluation (House, 1981; Kahn & Antonucci, 1980). These attributes of social support are helpful and protective to individuals by providing or reciprocating supportive actions.

Although social support usually is taken to be positive as it is the assistance and protection given by others, Antonucci (1985) argued that the recipient may perceive support to be negative if the recipient is not ready to accept or has no need for those supports. Social support may turn out to be negative or harmful to the recipient in spite of the positive intention of the supporter. The perception of the supports is varied by the provider-recipient interaction and relationship, reason for providing support, and the time of support that it is provided (Hupcey, 1998).

Social support and maternal role attainment in HIV-positive mother

Social support is viewed as a key environmental factor having positive direct effect on maternal role attainment and protecting the mothers from the effects of stress (Cohen & Syme, 1985; Koniak-Griffin, 1993; Mercer, 1981; 1990;). Empirical studies support the proposition that social support is consistency associated with maternal role attainment (Hankla, 2001; Leesen, 2000; Rujiraprasert, 1996). In a study of the maternal role attainment in mothers having low birth weight infants (Rujiraprasert, 1996), social support was positively correlated with maternal role attainment ($r = .26$, $p < .01$). Emotional support and instrumental support were significantly positively correlated with maternal role attainment ($r = .24$, $p < .01$; $r = .41$, $p < .001$ respectively). Social support explained a significant 6.8% of variance in maternal role attainment significantly. In testing a model of maternal role attainment among 390

working mothers, Phumonskul (2000) reported that social support had a positive direct effect on the mother's self-esteem ($b = .81$ $p < .05$) and infant's characteristic ($b = .80$ $p < .05$); and that there was an indirect effect on maternal role attainment via those two variables. As a result, social support can be thought of as an important environmental factor affecting maternal role attainment.

Social support is an important factor for HIV-positive mothers to attain the maternal role (Jirapaet, 2001). Limrungrong (1997) studied on the relationship between social support and maternal adaptation among 80 Thai, HIV-positive mothers. The finding showed that social supports had a significant positive correlation with maternal role adaptation significantly ($r = .53$, $p < .001$). The important social support included instrumental support, emotional support, and informational support. In contrast, Santacore (1997) tested a model of social support, uncertainty, and maternal role attainment among 25-HIV positive mothers. The three indicators of social support were the Norbeck Social Support Questionnaire, the Religiosity scale, and the Spiritual Well-Being Scale. The finding showed that the relationship between social support, uncertainty, and maternal role attainment was not significantly. The researcher admitted, however, that the results of this study would be limited by the small sample sizes.

Black and colleagues (1994) found that HIV-positive mothers who reported more support had more involvement in feeding of their infants than those with low levels of support. It has been demonstrated that increasing social support for HIV-positive mothers can improve the mothering role (Black et al., 1994). The intervention given to 46 Thai HIV-infected mothers rearing their own infants in an empowerment program which is included peer group meetings, providing professional support on infant rearing and maternal self-care, stress management, and alternative medicine produced the increased levels of coping ability, quality of life, and maternal role adaptation (Jirapaet, 2000).

In studies of maternal role attainment, social support has been found to be positively related to the maternal role attainment among healthy mothers and mother with complications from illness.

Social support and depression in HIV-positive mothers

The literature has documented the benefit of social support in buffering the effects of stress including stress associated with physical illness and its role in enhancing coping behaviors (Cohen & Syme, 1985; Lazarus & Folkman, 1984). Social support and social networks are viewed as a buffer (any condition that helps the individual adapt to stress) of stresses among HIV-positive mothers (Andrew, 1995). The results of several studies have supported the relationship between lack of social support and maternal depressive symptoms (Beck, 1996b; 2001; Harrison & Stuifbergen, 2002; Hudson, Elek & Campbell-Grossman, 2000; Logsdon & Usui, 2001; Navaie-Waliser, Martin, Tessaro, Campbell, & Cross, 2000). Wongvisetsirikul (1997) studied the factors relating to maternal depression among 200 Thai first time mothers. The finding indicated that lack of social support was significantly correlated with postpartum depression ($r = -.26, p < .001$). A meta-analysis of 44 studies related to maternal depression, the finding showed that social support had relationship with depression of mother at the moderate effect size (the mean r ranged from .37 to .39) (Beck, 1996b).

In studies of HIV-infected women, a consistent finding is that social support mitigates against depressive symptoms (Lin, Ye & Ensel, 1999). Serovich and colleague (2001) examined the role of social support (actual support, and perceived support) and mental health outcome (depressive symptoms, anxiety, loneliness, and stress). The results indicated that perceived support from family was correlated with depressive symptoms ($r = -.56, p < .001$) (Serovich et al., 2001). In addition, the results confirmed that perceived social support, rather than actual social support was correlated with mental health outcome. Similarly, Moneyham and colleague (2000) reported that environmental resources including tangible resources, social support, and family cohesion had an effect on depressive symptoms ($R^2 = .133, p < .001$) (Moneyham et al., 2000). Andrew (1995) reported that social support and social network were viewed as resources for HIV-positive mothers to cope with their difficulties.

The evidences consistently show that lack of social support is associated with high depressive symptoms, the indicator of at risk for depression. Since depressive symptoms are the common emotional response of HIV-positive mothers, social

support seems to be an important factor decreased maternal depressive symptoms in HIV-positive mothers.

Social support and self-esteem in HIV-positive mothers

Empirical studies have illustrated the positive relationship between social support and maternal self-esteem (Logsdon & Usui, 2001; Phumonskul, 2000; Soomlek, 1996). In testing factors affecting the maternal role attainment, Phumonskul (2000) reported that social support had a positive direct effect on self-esteem ($b = .81$, $p < .05$), which had a significant positive direct effect on maternal role attainment. Similarly, Soomlek (1996) studied a causal model of maternal role mastery among 250 first-time mothers. The finding indicated that social support had a direct effect on self-esteem ($b = .37$, $p < .01$) and had an indirect effect on maternal role competence via self-esteem ($b = .11$, $p < .05$). In similar finding, Wongvisetsirikul (1997) reported that social support was significantly and positively correlated with self-esteem significantly ($r = .24$, $p < .001$).

The evidence supports the hypothesized that social support has an effect on the self-esteem of mothers. These findings are consistent among the healthy mother with healthy infants. However, there has not been any study addressing the effect of social support on self-esteem among HIV-positive mothers.

Stigma

HIV/ AIDS has been characterized as a disfiguring and frightening disease, which threatens to devastate communities and society (Malcolm, Aggleton, Bronfman, Galvao & Mane, 1998). Within the context of HIV-infection, HIV related stigma has uniquely and dramatically affected the life experiences of HIV-positive women and their families (Alonzo & Reynolds, 1995; Hackl et al., 1997; Moneyham et al., 1996). Stigma, a negative social phenomenon, has been defined as ‘an attribute that is significantly discrediting,’ a mark of shame. A stigmatized person is referred as a person who possesses a difference that is not wanted by society (Bunting, 1996; Goffman, 1963). Stigma has been defined in two ways; individual may respond to ‘felt’ stigma by perceiving the potential for discrimination, or ‘enacted’ stigma by experiencing discrimination (Jacoby, 1994). Such stigmatization has resulted in individuals or group of people becoming the target for blame and punishment (Malcolm et al., 1998).

Women with HIV-infection are stigmatized because HIV-disease is viewed as a contagious and chronic illness, deadly, dirty, and unable to be cured (Alonzo & Reynolds, 1995; Ingram & Hutchison, 1999; Moneyham et al, 1996; Sandelowski, Lambe, & Barroso, 2004;). In addition, the HIV-related stigma intensifies for HIV infected women because of the automatic association of HIV-positive women with deviant behavior in society such as prostitution, drug used, and promiscuity; and because of the risk of transmission of the disease to “innocent” children (Alonzo & Reynolds, 1995; Bunting, 1996; Lee, Kochman & Sikkema, 2002; Sandelowski & Barroso, 2003).

From a metasynthesis of 93 qualitative findings on stigma in HIV-positive women, Sandelowski and colleagues (2004) reported that the women living with HIV-infection experienced feelings of stigmatization even though they reported no specific stigmatizing act directed towards them. They managed the stigma by controlling information to preserve social relations and maintain moral identity. In addition, they manipulated their environment in an attempt to keep their HIV status secret in order to avoid negative reactions and discrimination against them and their families (Sandelowski et al., 2004).

The stigma of HIV disease is viewed as a social stress for HIV-positive mothers (Antle et al., 2001; Mercer, 1990). A mother puts effort into decreasing the effect of having HIV, maintaining her identity as a normal woman, and preventing physical, psychological, and social harm to others, especially her children. Results of several studies indicated that HIV-positive mothers experience stigma (Hackl et al., 1997; Miles et al., 2001) Thampanichawat (1999) studied the experience of Thai mothers living with HIV infection. The finding indicated that Thai HIV-positive mothers also perceived HIV/ AIDS as a stigmatized disease. They tried to keep their HIV status secret to avoid negative reaction and discrimination against them and their families. They were likely to disclose their HIV status if they expected benefits for themselves or for significant others. However, they were likely to conceal their illness if they perceived threats to themselves or to significant others. In the context of HIV-infection, the stigma is the uniqueness of the social stress that contributes the emotional distress, low self-esteem, and feelings of negativity towards self (Fife & Wright, 2000; Miles et al., 1997; Moneyham et al., 1996).

Stigma and depression in HIV-positive mothers

Stigma affects psychosocial status of vulnerable men and women with HIV infection (Flashkerud & Winslow, 1998; Lee et al., 2002). In the study on the internalized stigma among 268 people living with HIV/AIDS, the finding showed that the internalized stigma was correlated with the depression ($r = .46$, $p = .00$) (Lee et al., 2002). Hierarchical regression analyses have shown that the internalized stigma has a significant effect on depression ($\beta = .17$, $p = .003$). People with asymptomatic HIV infection, generally, have high levels of psychiatric morbidity because of the stigma that accompanies with HIV diagnosis (Fullilove, 1989). In the asymptomatic phase, HIV-positive mothers try to live normally by keeping their infection secret, covering the diagnosis, and monitoring for stigma (Sandelowski et al., 2004; Ingram & Hutchinson, 1999).

In HIV-positive mothers, feelings of stigma are associated with emotional distress, including depressive symptoms (Miles et al., 1997). Miles and colleagues (2001) reported that HIV-positive mothers had moderate feelings of stigma; the feeling of stigma was associated with depressive symptoms in HIV-positive mothers during the 2 years postpartum period ($r = .50$, $p < .001$) (Miles et al., 2001). Thus, HIV-related stigma is a social stress factor influencing the maternal depressive symptoms of HIV-positive mothers.

Stigma and self-esteem in HIV-positive mothers

The long-term effects of AIDS stigmatization affected not only on emotional well-being but also social interaction, self-perception, and the self-esteem of people living with HIV (Fife & Wright, 2000; Miles et al., 1997; Santana & Dancy, 1999). Fife and Wright (2000) conducted a study on the impact of stigma on the self-esteem of persons with HIV/AIDS and cancer. Stigma was examined in four dimensions of perceived stigma: social rejection, internalized shame, social isolation, and financial insecurity among HIV/ AIDS and cancer patients. HIV patients experienced significantly greater feelings of stigma than cancer patients. Stigma accounted for 28% of variance in self-esteem. The effect of stigma is associated mainly with social rejection ($\beta = -.17$, $p < .05$) and social isolation ($\beta = -.26$, $p < .05$). Berger and colleauge (2001) developed an instrument to measure the stigma perceived by people with HIV and they tested the construct validity among people with HIV. The results of

the study showed that overall perceived stigma scores were associated with self-esteem ($r = -.60, p < .001$) (Berger, Ferrans & Lashley, 2001).

Thus, HIV-related stigma is uniquely viewed as social stress among HIV-infected mothers. The evidence shows that stigma is significantly related to depressive symptoms and self-esteem, which is considered as the major predictor of maternal role attainment as mentioned above. Therefore, it is crucial to test the effect of HIV-related stigma on maternal role attainment in HIV-positive mothers.

Summary

With regard to Mercer's theoretical framework, maternal role attainment is affected by mother and infant characteristics, and environmental context which encompass social support and social stress. A review of the literatures shows that mothers with HIV-infection present problems that may interact with one another to facilitate or impede the maternal role. For examples, infant health may influence the maternal role attainment in regard to the specific contexts such as the infant health status. The infant health status will have an effect on maternal role attainment when the infant had been seriously ill. It has been demonstrated that testing the factors influencing maternal role attainment in the specific situation is crucial for specific.

In mostly previous studies of the maternal role attainment, the Mercer's theoretical framework has been applied in the studies among healthy mothers, and healthy infants. Despite the fact that HIV-positive mothers encounter the complicated situations while they are taking care of their infants and attaining the maternal role, little is known about maternal role attainment among these mothers. Therefore, a study on the factors influencing the maternal role attainment among HIV-positive mothers is necessary. This study aims to fill the gaps of knowledge by testing a predicting model of factors influencing the maternal role attainment among HIV-positive mother in order to guide the construction of an intervention to promote the maternal role attainment in HIV-positive mothers. This model was derived from the Mercer's framework.

CHAPTER III

METHODOLOGY

The research methodology in this study was included research design, measurement, protection of human subjects, data collection, and data analysis.

Research Design

This is a descriptive study, which used a cross-sectional design to analyze the relationships among maternal characteristics, infant characteristics, environmental conditions, and maternal role attainment in Thai HIV-positive mothers. Based on Mercer's maternal role attainment theory (Mercer, 1981; 1985b; 1995), the selected factors of maternal characteristics were maternal health status, self-esteem, and depression; the infant characteristic was infant health status; and the environmental conditions were social support and stigma. The Linear Structure Relationships (LISREL) program was performed to investigate the research questions and hypotheses.

Participants

Participants were Thai, HIV-positive biological mothers whose infants were aged between 3 and 12 months. The inclusion criteria for enrollment were as follows.

1. Age 18 years or over.
2. The HIV-status of her infant was inconclusive.
3. Having maternal role attainment (by asking the questions as in Appendix A)

The exclusion criteria was a mother having severe mental health problems.

Sample Size

The sample size for this study was based on the basic of using covariance for Structural Equation Modeling (SEM) (Kline, 1998; Hair, Anderson, Tatham & Black, 1998). Hair and colleagues (1998) suggested that the minimum sample size is a minimum ratio of at least 5 respondents per each estimated parameter or a ratio of 10 respondents per parameter considers most appropriately. For this study, the hypothesized model had 28 parameters; thus the estimated minimum sample size was at least 140-280 subjects.

Setting

The participants were recruited at the pediatric HIV-follow-up clinics and at social welfare department in government hospitals in the Bangkok metropolitan area, and Loburi, Samutsakorn, and Suphanburi provinces, Thailand. These hospitals implement program prevention mother-to-child transmission HIV (PMCT) for HIV-positive pregnant women. The interventions under this program include counseling and care for HIV-positive mothers during pregnancy and after delivery. The PMCT program provides counseling pre and post blood testing at antenatal clinics, anti-retroviral drug management, and provision formula milk for substitution breast milk. The PMCT program provides the anti-retroviral drug management for HIV-positive mothers and their infants. HIV-positive mothers are provided with breastmilk substitute for replacement infant feeding for 1 year after delivery, to prevent HIV transmission through breastfeeding. HIV counseling is provided for HIV-positive mothers until their infants are 18 months.

At pediatric out patient clinics, infants born to HIV-positive mother have vaccination and the follow-ups to determine whether they have HIV- infection or not. In the Bangkok metropolitan area, the settings were Bamrasnaradura Institute, Bhumibol Adulyadej Hospital, Somdejphrapinklao Hospital, Thammasart Hospital, King Chulalongkorn's Memorial Hospital, Police general hospital, and Samutprakran hospital. Some hospital such as Thammasart, Samutprakran, and Samutsakorn hospitals had schedule for group meeting among HIV/AIDS patients.

Sampling

A simple sampling method was used to recruit the samples. The subjects who met the criteria were given a number. Every subject with an odd number was selected as a sample until the desired sample size had been reached.

Variables and Measures

The instruments used in this study were (a) the Short-form Maternal Role Attainment Scale, (b) the Center for Epidemiologic Studies Depression Scale (CES-D); (c) Rosenberg's Self-esteem Scale, (d) The HIV-symptom Index, (e) Self-rated Health Status, (f) The History of Infant's Illness, (g) Personal Resource Questionnaire 85 part 2 (PRQ 85 part 2), (h) Demi's HIV Stigma Scale (see Table 3.1).

Table 3.1 Summary Constructs, Concepts, Variables and Measures

Constructs	Concepts	Variables	Measures	Scale	Range	Reported reli.	Recent reli
Maternal Attainment	Maternal Role Attainment	Maternal Role Attainment	Maternal Role Attainment Scale (Short Form) (SF-MRAS)	1 - 5	24 – 120	.89	.92
Maternal Characteristics	1. Depression	1. Depressive-Symptoms	1. Attachment				
			2. Satisfaction				
			3. Competence				
			1. Center for Epidemiologic Studies Depression Scale (CES-D) 1.1 Depressed Affects 1.2 Positive Affects 1.3 Somatic and Retarded Activity 1.4 Interpersonal Relationship	0 - 3	0- 60	.85-.92	.87
Infant Characteristic	2. Self-esteem 3. Health Status	2. Self-esteem 3. Health Status	2. Rosenberg's Self-esteem Scale	1 - 4	1- 40	.73-.90	.80
			3.1 Self-rated Health Status	1 - 5	1-5		
			3.2 HIV-symptom Index	0 - 3	0-36	.79	.76
Environment Conditions	1. Social Support	1. Perceived Social Support	The History of Infant Symptoms	0 - 2	0-16		0.62
			1. Personal Resource Questionnaire 85 part 2 (PRQ 85 part 2) 1.1 Intimacy 1.2 Nurturance 1.3 Self-worth 1.4 Social Integration 1.5 Assistance and Guidance	1 - 7	25-175	.81-.93	.89
Stigma	2. Perceived Stigma	2. Perceived Stigma	2. Demi's HIV Stigma Scale	1 - 4	12- 48	.77-.88	.87

Maternal Role Attainment

The Short-form Maternal Role Attainment Scale (SF-MRAS) was used to measure maternal role attainment. The SF-MRAS is a revised form of the Maternal Role Attainment Scale (MRAS), which was developed for Thai mothers, based on Mercer's maternal role attainment conceptual framework and Rubin's maternal identity theory (Phumonsakul & Phanchaoenworakul, 2003; Phumonsakul, Somboonsup, & Siri wattanchock, 2004). The SF-MRAS was a subjective self-reported and consisted of three components of maternal role attainment: mother-infant attachment, maternal role competence, and maternal gratification (Phumonsakul et al., 2004).

The SF-MRAS, which had satisfactory psychometric properties relevant to Thai culture, was modified to measure the maternal role attainment of the mother with HIV-infection in this study. The modified SF-MRAS consisted of 24 items, which captured all three components of maternal role attainment: mother-infant attachment (item 1-6), maternal role competence (item 7-15) and maternal gratification (item 16-24) (see Appendix A). The SF-MRAS was a self-rating scale ranging from strongly disagree (code 1) to strongly agree (code 5). The possible score ranged from 24 to 120. The scores were determined by summing the total scores; greater scores indicate a greater maternal perception of success in maternal role attainment. The total score of the SF-MRAS was used in the analysis.

Validity

The construct validity was explored by factor analysis with factor loading 0.3 and varimax rotation; the items yielded 3 factors and the total scores explained 47.2 percent of variance on the SF-MRAS. The construct validity was also supported by the fact that the SF-MRAS correlated with "What Being the Parent of a New Baby is Like (WPL-R)," which is the measurement of maternal role attainment among first time mothers. The correlation was .33 ($p < .05$); and the content validity was supported by the maternity-nursing experts.

For the population of this study, the content validity was supported by 2 experts in maternity and child nursing and 1 expert in pediatric nursing. Some modification had been made followed by the expert advices.

Reliability

In this study, for the sample 263 HIV-positive mothers, the internal consistency reliability was .92 for the total scale and ranged from .79 to .86 for each component.

Depression

The Center for Epidemiological Studies Depression (CES-D) Scale (Radloff, 1977) was used to assess maternal depressive symptoms (see Appendix B). The 20-item scale assessed affective components including depressed mood, positive affect, somatic and retarded activities, and interpersonal relationship (Radloff, 1977). This questionnaire consists of 4 factors: depressed affect (item 3, 6, 9, 10, 14, 17, 18), positive affect (item 4, 8, 12, 16), somatic symptoms and retarded activity (item 1, 2, 5, 7, 11, 13, 20), and interpersonal problems (item 15, 19). This instrument assessed the frequency of the occurrence of those symptoms in the week prior to the assessment interview. The 4-point Likert scale was ranged from 0 (rarely or none of the time-less than one day) to 3 (most or all of the time-5-7 days). The scores were determined by summing the frequency of symptoms after reversing the score on four items of positive affect subscale in the opposite direction. The higher scores denote at risk of depression. It has been suggested that the cut-off score of 16 or greater meaning at risk of depression (Myer & Weissman, 1980).

Validity

The validity of the CES-D has been supported by substantial correlations with other self-reports of depressive symptoms. The correlation with the Beck Depression Index was 0.81; and correlation with the Symptom Check List-90 ranged from 0.72 to 0.87 (Weissman et al., 1977). Using the Raskin Scale as a criterion, Weissman and colleagues (1977) reported high sensitivity for detecting depression in various patient groups. Sensitivity was 99% for acute depressives, 94% for alcoholics, and 93% for schizophrenics.

Reliability

The internal consistency reliability of the CES-D has been demonstrated to be high in high-risk and low-risk mothers (Mercer & Ferketich, 1994b). Cronbach's alpha ranged from .88 to .91 among 121 high-risk, and .85 to .90 among 182 low-risk mothers. The CES-D was also used to examine depressive symptoms in mothers with HIV; the Cronbach's alpha was .90, .91 and .92 among 54, 51 and 34 biological

mothers of infants as in order (Miles et al., 1997). The internal consistency among 295 Thai HIV-infected mothers who had young children was 0.88 (Bennetts et al., 1999).

The CES-D was translated into Thai by the back translation method and used in HIV-positive, Thai pregnant women (Boonpongmanee, Zauszniewski & Morris, 2003). The content validity and cultural applicability were established by experts. The internal consistency among 77 HIV-infected mothers was .85. In this study, for the sample 263 HIV-positive mothers, the internal consistency reliability was 0.87 for total scale, and ranged from .67 to .88 for subscales.

Self-esteem

Rosenberg's Self-esteem Scale (RSE) (Rosenberg, 1965) was used to measure global self-esteem in HIV-positive mothers (see Appendix C). The RSE was translated into Thai by Soomlek (1996) and used with Thai mothers. The 10-item scale was developed to assess self-esteem in a wide range of populations including pregnant and postpartum women (Marcenko & Spence, 1994; Rosenberg, 1965; Waliser et al., 2000). The items of RSE were equally divided into positive and negative evaluations of self-worth. The response format was a Likert-type scale ranged from 1 (strongly disagree) to 4 (strongly agree). The total scores were determined by summing the scores of the items after reversing the score on five negative items worded in the opposite direction (item 3, 5, 8, 9, 10); the higher score means the higher self-esteem.

Validity

The RSE scale has shown good convergent validity with other measures of self-esteem. The correlation with self-confidence was .65, with general self-regard was .78 (Blascovich & Tomaka, 1991), and with Coopersmith's Self-esteem Inventory was .59-.60 (Robinson & Shaver, 1973).

The content validity of the Thai translation of Rosenberg's Self-esteem was performed by 6 maternity nursing experts (Soomlek, 1996) and 4 maternity and newborn specialists (Buaphut, 2002). The construct validity was supported by factor analysis of data among 159 working primiparous mothers (Soomlek, 1996) and 390 mothers (Phumonsakul, 2000). Two factors explained the variance for 50% and 51% respectively.

Reliability

The Rosenberg's Self-esteem Scale has consistently demonstrated high internal consistency and reliability with samples of mothers (Hess, Papas & Black, 2002; Logsdon & Usui, 2001). Of those two previous studies, the internal consistency of Cronbach's alpha in postpartum women at 4-6 weeks was .83 (Logsdon & Usui, 2001); and in adolescent mothers, it was .83 (Hess et al., 2002). Mercer and Ferketich (1994) reported that the alpha coefficient ranged from .84 to .90 in high-risk mothers, and .87-.90 in low risk mothers. Anderson (2000) reported that the internal consistency with Cronbach's alpha was 0.85 and 0.87 among men and women infected with HIV.

Reliability of the Thai version of RSE was .80 among 205 subjects (Soomlek, 1996); was .73 for 390 working mothers (Phumonskul, 2000); and was .78 among 120 postpartum mothers (Buaphut, 2002). For this study, the internal consistency reliability for total scale was 0.80 among 263 HIV-positive mothers.

Maternal Health Status

The HIV Symptom Index, and Self-Rated Health Status were used to measure mother's health status.

The Self-rated Health Status

Self-rated health status is measured by a single item that represents global evaluation of subjective well-being (Ware, Nelson, Sherbourne & Stewart, 1992). The respondents rate their current health on 5-point scale ranging from (1) excellent to (5) very bad (see Appendix D). The scores range from 0 to 5, with a higher score indicating poorer health. A single-item of self-rated health status is recommended as an important indicator for the study of appraisal of health status (Youngblut & Casper, 1993). In addition, a single-item rating of health has been widely used and has been shown to predict health outcome equally or better than more complex measures (Idler & Kasl, 1991).

The HIV Symptom Index

The HIV Symptom Index was used to measure the frequency of the HIV-related symptoms experienced by mothers (Whalen, Antani, Carey, & Landefeld, 1994) (see Appendix D). The HIV Symptom Index contains 12 HIV-related symptoms that are common and bothersome as reported by patients with HIV infection. The item is based

on symptom reliability, reported frequency and association with advanced categories of infection. This measure is based on the frequency of symptoms and rated from 0 to 3 (0 = never, 1 = the symptom occurred up to 3 days per week, 2 = occurred 4 to 6 days per week, and 3 = occurred daily). The score is constructed by summing the number of symptom experiences, each weighted by its frequency. The higher score means the more symptoms of disease.

Validity

The content validity, the HIV Symptom Index contains representative symptoms including a spectrum of constitutional symptoms and organ-specific symptoms that are common in HIV-infected outpatients (Whalen et al., 1994). The index score correlated highly with the sum of individual frequency ratings for all 36-frequency symptoms (Whalen et al., 1994). The construct validity was supported by evidence that the patients with more advanced disease have higher index scores than patients with less advanced disease. This index is sensitive to patients with HIV symptoms, that is, only 2 of the 142 symptomatic patients had symptom index scores of zero. Similarly, patients with CD4 lymphocyte counts less than 200 had higher mean index scores at baseline than did patients with CD4 lymphocyte count greater than 200 ($p < .005$). In addition, the patients who were functionally impaired in activities of daily living (ADLs) and instrumental activities of daily living (IADLs) had higher index scores than fully functional patients. These findings prove the construct validity of the index (Whalen et al., 1994).

Reliability

The test-retest reliability within 2 weeks was high among 21 HIV-infected patients; the correlation coefficient = .92. The internal consistency was tested among 148 randomly selected outpatients with a broad spectrum of HIV disease. The Cronbach's coefficient alpha was 0.79 (Whalen et al., 1994). These findings indicate the reliability of the measure. In this study, for the sample 263 HIV-positive mothers, the internal consistency reliability was 0.76 for total scale.

Infant Health Status

Infant's health status was measured by the history of infant's illness during the past 3 months (see Appendix E). This is an indicator of the quality of life of the infants living with HIV-infected mothers (Sutachayanon, 1998). The mother rated the

frequency of illness or symptoms experienced by their infants. The score was rated from “0” (never) to “2” frequency (every month). This scale was constructed by summing the scores. The higher score means the more experiences of illness.

Validity

In this study, the content validity was supported by 1 pediatric physician, 2 experts in maternity and child nursing and 1 expert in pediatric nursing.

Reliability

In this study, for the sample 263 HIV-positive mothers, the internal consistency reliability was 0.62 for total scale.

Social Support

The Personal Resource Questionnaire-85 (PRQ- 85) part 2 was used to assess perceived available social support (see Appendix F). The PQR 85 Part 2 (Weinert & Brandt, 1987) was a 25-item Likert scale measuring the respondent's level of perceived social support. The PRQ 85 part 2 had five relational dimension of support: provision for attachment/ intimacy, social integration-being an integral part of a group, opportunity for nurturing behavior, reassurance of worth as an individual and in role accomplishments, and the availability of informational, emotional, and material help. Each item scale is scored from 1 (strongly disagree) to 7 (strongly agree). Scores were obtained by summing the 25 items; a higher score indicated that the respondent perceived a high level of social support.

Validity

The construct validity and reliability were tested in 100 adults aged between 30 to 37 years old (Weinert & Brandt, 1987). The construct validity examined the correlation of social support to outcome measures of mental health indicators. With the Beck Depression Inventory (BDI) the correlation was $-.42$ ($p < .001$); and with the Spielberger Self-Evaluation Questionnaire-Trait Anxiety was $-.37$, ($p < .001$). The convergent validity testing in two data sets has revealed that the PRQ-85 Part 2 significantly correlates with the support subscale of the cost and reciprocity index (CRI); the correlation ranged from $.53$ -. $.58$ (Weinert & Tilden, 1990).

Reliability

Using Pearson correlation, the test- retest reliability coefficients were $r = .72$, $p < .001$ for perceived support part 2. The internal consistency reliability coefficient for

the total perceived support scale was 0.93; the subscale reliability coefficients ranged from .79 to .88. Then at 4-6 weeks, the reliability coefficient for the total scale was $\alpha = .91$; the subscales reliability coefficients ranged from .70 to .88. This shows that PRQ-85 part 2 has good internal consistency for the total scale and average internal consistency for the individual subscale (Weinert & Brandt, 1987).

The PRQ-85 was translated into Thai with the Back translation method and used in the study of Thai mothers (Sinsuksai, 1998). The Alpha coefficient of the Thai version was .89 in the study of Thai first-time mothers of 6-month-old infants (Sinsuksai, 1998) and .81 in the study of 76 Thai mothers of premature infants (Prasopkittikun, 2001). In this study, for the sample 267 HIV-positive mothers, the internal consistency reliability was 0.88 for total scale and ranged from .58 to .70 for subscales.

Stigma

The Demi's HIV Stigma Scale was used to measure the perceived stigma. This scale was developed out of the literature on stigma experienced by those with chronic illness and by suicide survivors in order to assess thoughts and feeling about stigmatization related to HIV (Demi, Bakeman, Sowell, & Moneyham, 2001). The 12-item self-report questionnaire is a 4- point Likert type ranging from "1" (not at all) to "4" (often) to indicate the experiences of thoughts or feelings about stigmatization in the past six months before completed the questionnaire (see Appendix, G). A total score is obtained by summing across all items (range = 12 to 48); a high score means a high feeling of stigma. Total mean scores were used in analysis to represent the feelings of stigma.

Validity

The face content validity of the scale was assessed in 4 focus groups with HIV-infected women and one focus group with family members. The members of the focus groups endorsed all the items as being relevant to HIV infected people and to close family members. The construct validity was supported by evidence that the stigma scale showed significant difference between treatment and control group in an HIV self-care intervention (Miles et al., 2003). The convergent validity was supported by the positive correlation of the HIV stigma scale scores with emotional distress ($r = .50$).

Reliability

The Cronbach's alphas in a sample of HIV positive African American women ranged from .87 to .88 (Miles et al., 2003). In this study, for the sample 263 HIV-positive mothers, the internal consistency reliability was .86 for total scale.

To use the Demi's HIV Stigma Scale in this study, the researcher translated this scale into Thai. The translation was validated by the back-translation method (Burns & Grove, 1993). The English version (original language) was translated into Thai (target language) by a Thai person who had studied in the United States for 6 years and was fluent in English. The Thai translated version was then back translated into the English language (the original language) by two Thai people who had the ability to use both the Thai and English languages. The back-translated version was compared with the original version. The discrepancies between the two translations were identified and the procedure was repeated until problems were resolved. To assure the validity of the translated version, content validity and cultural applicability were checked by experts.

Demographic Data

Selected demographic data were collected on participants and their infants for descriptive purposes (see Appendix H).

Maternal demographic data included age, religion, marital status, educational level, socioeconomic status, the timing of HIV diagnosis, antenatal care, mode of delivery, medical care received for mother's HIV disease, medication taken for HIV disease, the number of children in home, and the disclosure of HIV diagnosis,.

Infant demographic data included the infant's date of birth, gender, complication after birth, the infant's current medications, the history of hospital admission status, and the perception of growth and development of the infant.

For this study, the set of instruments was checked for content validity by HIV-expert physicians and HIV-experts from maternal and child nursing, pediatric nursing, and adult nursing. For clarity and appropriateness, these instruments were tested among 10 HIV-positive mothers with the same characteristics as the population of the study. In addition, those participants were asked about the clearly wording and the understanding of questionnaire. They responded that the questionnaire was clear to understand. They took average 25-35 minutes to complete all the questionnaires.

Data Collection Procedures

This study was approved by the Mahidol University institutional review board (Appendix O), and Committee on Human Research and by the hospital review boards for the protection of human subjects at the participating hospitals. The confidentiality of the study procedures was treated as a critical component of the study. The data collectors were investigators; they were researcher and researcher assistants. The researcher trained the researcher assistants regarding the objectives of the study, data collection procedures, and the roles of the research assistant. Upon the approval of the hospital review board and permission from the setting, data collection took place from December 2004 to July 2005. The procedures for data collection were as follows:

1. The researcher explained the process of study and data collection procedure to the clinical staff in each setting.
2. Nurses or counselors at each setting approached the eligible subjects who met the sampling criteria, introduced the study, and asked whether they would agree to participate in the study and ask for their permission to introduce them to the investigator.
3. The subjects who agree to participate in the study were introduced to the investigators. The investigators explained the purpose of the research to the subjects, and reassured them that the data would be treated as confidential. Their identities would not be disclosed and they have the absolute right to participate in, to refuse to participate in, or to withdraw from the study at any time without prejudice to their or their child's continuing medical treatment.
4. The subjects who agreed to participate in the study were asked to sign the consent form (see Appendix P).
5. The subjects were asked to complete 9 questionnaires in this order (a) the Short-form Maternal Role Attainment Scale, (b) the Center for Epidemiologic Studies Depression Scale (CES-D); (c) the Rosenberg's Self-esteem Scale, (d) the HIV-Symptom Index, (e) the Self-rated Health Status, (f) the History of Infant's Illness, (g) the Personal Resource Questionnaire 85 part 2 (PRQ 85 part 2), (h) the Demi's HIV Stigma Scale, (i) the Demographics and Background Information Questionnaire. It took about 30-35 minutes to complete all questionnaires.

6. The investigators explained how to complete the questionnaires to the participants and allowed them to ask any question.

7. The investigators read the questionnaires to the participants who could not read.

8. The investigators checked the completeness of the answers.

Protection of Human Subjects

The proposal was reviewed by the Mahidol University Institutional Review Board (IRB) (Appendix O), and the Human Research Board of the potential settings. Permission was obtained before the start of data collection. At the clinic, the nurse staff or counselors introduce the research program to the potential participant and ask for their permission to introduce them to an investigator. The participants who agree to meet the investigator were informed about the purpose of the study, voluntary participation, and the right to refuse to participate in or to withdraw from the study at any time before, during or after data collection was completed (see Appendix P). The refusal to participate in the study did not affect their child's health care.

There were four mothers agreed to meet the investigator but they did not enroll in the study. Two mothers refused to enroll in the study because they did not have time available to do the questionnaire at that visit. The others were excluded because their emotional situations were extremely sad while talking about their families.

To protect confidentiality, the study materials were free of references to HIV, all information obtained was identified by code. In addition, the consent form and identifying demographic data were kept apart from other study materials and immediately destroyed when the study ended. All data were kept confidential in a secured location, entered into a password-protected computer database, and were not shared with the clinical care team. The results of the study were summarized by group.

Data Analysis

The data was analyzed descriptive statistics by using the Statistical Package for the Social Sciences program (SPSS), and the Structural equation model analysis was used the Linear Structural Model Relationship program version 8.52 (LISREL). The procedures for data analysis were as follows.

1. The description of the sample and descriptive statistics including means, frequencies, and distribution of the variables was analyzed by descriptive statistics.

2. The assumptions underlying structural equation model analysis were determined including normality of distribution, linearity of relationship, homogeneity of variance, and multicollinearity.

3. The reliability of all measurements was tested by Cronbach's Alpha Coefficient.

4. The correlation matrix and the covariance matrix among variables of models were computed.

5. The measurement models were tested for construct validity by confirmatory factor analysis (CFA).

6. Testing of the hypothesized model was performed by the LISREL program. The full model was tested for goodness-of-fit index. The Chi-square (χ^2), the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), and the Root Mean Square Error of Approximation (RMSEA) were used as indicators of Goodness-of-fit index in this study.

7. Where there was inadequate fit of data, the initial model was adjusted under the modification index and theoretical meaning until the model fitted to the data.

The Structural Equation Model (SEM)

The full structural equation model comprised two models: the measurement model, and the structural model. The measurement model describes the relationship between the latent variables and the observed variables, which measure those latent variables. The structural model is a model of the hypothesized relationships between theoretical constructs or latent variables. To evaluate the model, the full model and the measurement model, the overall model-fit-index are examined to determine how well the model fits the observed data.

In this study, the four indicators were used to assess goodness of fit, they were this study used the four goodness-of-fit indices as indicators, they were the Chi-square (χ^2), the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), and the Root Mean Square Error of Approximation RMSEA) (Hair et al., 1998; Byrne, 1998; Kline, 1998).

The Chi-square (χ^2) value is the first criteria for goodness of fit index in Structural Equation Model analysis (SEM). The results which the chi-square is a non-significant level with a corresponding p-value > .05 and preferably close to 1.00 is recommended. Because chi-square is an appropriated fit for index evaluation for the large sample size, the χ^2/df has been developed in order to enable a pragmatic evaluation process. For good fit criterion, the χ^2/df ratio should be less than two.

The Goodness of Fit Index (GFI) is derived from a comparison of the squared residuals from prediction with the actual data. The GFI value should be ranged from 0 to 1. The higher value indicates better fit.

The Adjusted Goodness of Fit Index (AGFI) is an extension of GFI that is adjusted by the degree of freedom for the proposed model to the degree of freedom for the null model. The recommended acceptance level is a value greater than or equal to .90.

The Root Mean Square Error of Approximation (RMSEA) is another indicator for the overall degree of fit to data. The acceptable value ranges from .05 to .08 (Hair et al., 1998). A value less than .05 indicates a good fit while a value greater than .08 indicates reasonable errors of approximation in the population (Byrne, 1998).

For the fitted measurement model, each of the constructs is examined the factor loadings for statistical significance and assessed the construct's reliability. The t-value associated with each of the loadings exceed the critical value (P-value .05 = t value $\geq$ 1.96; P-value .01 = t value $\geq$ 2.58; P-value .001 = t value $\geq$ 3.52) means that the variable are significantly related to their specified constructs, verifying the posited relationships among indicators and constructs. The estimated of the reliability for each construct indicated whether indicators are sufficient in their representation of the constructs. For the fitted full model, the relationship among the latent variables are investigated to answer the hypothesis of the study.

CHAPTER IV

RESULT

The results of this study are presented the sample characteristics, descriptive variables of the study, the preliminary analysis, the results of the confirmatory factor analysis of the measurement model, and the results of the structural equation modeling with latent variables.

Characteristics of the Sample

The sample characteristics outlined are the number of participants enrolled in the study, and the demographic data of the participating HIV-infected mothers and their infants.

Number of participants

A total of 280 Thai HIV-infected mothers participated in the study. Cleaning up of data was conducted through examination of basic descriptive statistics with means, standard deviations, ranges and frequency distribution. The extremely missing data cases and outlier cases were excluded from the further data analysis. The number of participants in used for data analysis of the study was 263 cases.

Of these 263 participants, 20.9% were recruited from two university hospitals (King Chulalongkorn's Memorial and Thammasat university hospitals); 22.4 % were from two military hospitals (Bhumibol Adulyadej, and Somdejphrapinklao hospitals), and one police general hospital, and 56.8% were recruited from hospitals of the Ministry of Public Health.

Of the participants from the Ministry of Public Health hospitals, 25.8% were from the Bangkok metropolitan area (Pranangklaeo, Bumrasnaradura Institute, and Samutprakarn Hospital), and 31% were from hospitals in Loburi, Suphunburi, and Samutsakorn provinces.

Demographic data of participants

The mean age of the mothers was 27.4 years (SD = 4.9). Nearly all (97.3%) of the infected mothers were Buddhists, and 87.8 % were living with their husbands. Nearly half of the participants (42.2%) graduated elementary school, and 42.7% had

a low family household monthly income (1001- 5000 Baht/month). Most of the sample (68.1%) had only one child. The majority of the participants (81.0%) revealed their diagnosis to someone, while 19 % had not told anyone at all. Of those disclosure participants, they revealed their diagnosis to only their husbands (48.6%) and to close family members (8.3%). The demographic characteristics of the HIV-infected mothers enrolled in the study are summarized (in table 4.1).

Of the 263 participants, almost of them (80.2%) knew that they had HIV infection when they attended the antenatal care clinic. Nearly all (95.8%) received antenatal care and 85.9% took antiretroviral drugs at some point during pregnancy for their own health or to reduce the risk of transmission to their babies. A few participants (17.1%) were taking anti-retroviral drugs at the time of the survey in order to manage their HIV disease and prevent associated illnesses. The majority of participants (72.6%) had normal deliveries. Almost of the participants (61.9%) perceived their health as being good. Of the HIV-associated symptoms experiences, the most common symptoms were headache (49.8%) followed by sleep problems (45.2 %) and forgetfulness (44.1%). The features of the mothers' illnesses and their obstetric history have been shown in table 4.2.

Demographic data of the infants

Demographic data concerning the infants in this study are summarized in Table 4.3. The mean of infants' age was 7.4 months (SD = 3.1). Of 263 infants in the study, 54.4% were male. Nearly all (99.3%) received anti-retroviral drugs in order to reduce the rates of transmission after birth, had no complications (97.3%), and had no admissions to hospital after birth (92.8%). One fourth of the infants (20.5%) never experienced any symptoms. The most common symptoms experienced by the infants were common cold, fever, and diarrhea as in order.

Table 4.1 Demographic Characteristics of the Sample (n=263)

Characteristics	Frequency	Percentage
Age (years)		
18-20	23	8.7
21-30	177	67.2
31-40	63	24.1
Mean = 27.4 SD = 4.9 Range 18-40		
Religion		
Buddhist	256	97.3
Christian	3	1.1
Moslem	4	1.5
Education (level)		
None	10	3.8
Elementary School (6 th grade)	111	42.2
Secondary School (9 th -12 th grade).	109	41.4
Diploma or Technical	22	8.4
Bachelor or above	11	4.2
Marital status		
Married or living with a partner	231	87.8
Divorced or separated	22	8.4
Widowed	10	3.8
Family income/ month (n = 260)		
Below 1,000	27	10.4
1001-5000	111	42.7
5001-10,000	86	33.1
10,001-20,000	26	10.0
> 20,000	10	3.8
Number of children		
1	179	68.1
2	64	24.3
3	16	6.1
4	4	1.5
Disclosure of HIV diagnosis (n = 253)		
Not at all	48	19
Disclosure	205	81
To husband	123	48.6
To husband and close family members	59	23.3
To close family members	21	8.3
To friend	1	0.4
To husband and friends	1	0.4

Note: N=260 for family income because this information was not available for 3 participants

N=253 for disclosure HIVdiagnosis because this information was not available for 10 participants

Table 4.2 Features of the Mother's Illness and Obstetric History (n=263)

Characteristics	Frequency	Percentage
Timing of HIV Diagnosis		
During pregnancy	211	80.2
Before pregnancy	41	15.6
After delivery	11	4.2
Used Antiretroviral Drug During Pregnancy		
No	37	14.0
Yes	226	85.9
Ante-natal Care		
No	11	4.2
Yes	252	95.8
Currently Taking Medications to Manage HIV Infection		
No	218	82.8
Yes	45	17.1
Delivery		
Normal	191	72.6
Cesarean	67	25.5
Vacuum	3	1.1
Forceps	2	0.8
Self Report of Current Health Status		
Excellent	3	1.1
Very Good	23	8.7
Good	137	52.1
Fair	92	35
Poor	8	3
HIV Associated Symptoms ^a		
Headache	131	49.8
Sleep disturbance	119	45.2
Forgetfulness	116	44.1
Paresthesias	103	39.2
Sadness	98	37.3
Fatigue	94	35.7
Cough	90	34.2
Skin problem	80	30.4
Nausea	64	24.3
Fever	61	23.2
Imbalance	45	17.1
Diarrhea	36	13.7
Never at all	28	10.6

^a Some mothers experienced more than 1 symptom

Table 4.3 Demographic Characteristics of the Infants (n=263)

Characteristic	Frequency	Percentage
Age(months)		
3-6	123	46.8
7-9	64	24.3
10-12	76	28.9
Mean = 7.4 SD = 3.1 Range 3-12		
Gender		
Male	143	54.4
Female	120	45.6
Complication after Birth		
No	256	97.3
Yes	7	2.7
Medication to Prevent HIV Disease or Complication		
Anti HIV drug		
No	2	0.7
Yes	261	99.3
Bactrim		
No	115	43.7
Yes	148	56.3
Child Hospitalized for Illness		
No	244	92.8
Yes	19	7.2
Infant Growth and Development		
Delayed Growth		
No	257	98.7
Yes	6	2.3
Delayed Development		
No	260	98.9
Yes	3	1.1
Infants' HIV Associated Symptoms ^a		
Common cold	179	68.1
Fever	128	48.9
Diarrhea	81	30.8
Pharyngitis	77	29.3
Thrush	52	19.7
Skin problem	43	16.3
Pneumonia	9	3.4
Otitis Media	6	2.3
Never at all	54	20.5
Mean = 2.37 SD = 1.89 Range = 0- 9		

^a Some infants experienced more than 1 symptoms

Descriptive Statistics of the Study Variables

The study variables are stigma, maternal health, infant health, and social support self-esteem, depressive symptoms and maternal role attainment (Table 4.4). The mean total score of the perceived stigma scale in the study sample was 25.37 (SD = 7.83). The mean score, and skewness value indicated that a number of participants in this study perceived HIV-stigma.

For maternal health status, the majority of participants rated their health status at good level ($M = 3.30$, $SD = 0.72$), and experienced few and low frequency of symptoms during the past 1 months prior the study ($M = 5.08$, $SD = 4.34$).

The mean score of infant health status was 2.37 (SD = 1.89) with ranged from 0 to 9. The mean score and skewness value indicated that the majority of the infants in this study experienced few symptoms and low frequency of illness during the past 3 months prior the time of survey.

For social support scale, the mean total score of perceived social support scale was 130.56 (SD = 17.20). A number of participants perceived high social support both on total scale and all subscales. However, in subscale, the lowest mean score was on social integration support subscale ($M = 25.22$, $SD = 4.28$).

The mean total score of self-esteem scale was 30.45 (SD = 3.76) with the slightly positive skewness values, which indicated that the participants in this study perceived moderate global self-esteem.

For Depressive symptoms scale, the mean total score in the study sample was slightly greater than 16 ($M = 16.94$, $SD = 10.38$), which indicated that the participants in this study were at risk of depression.

The mean total score of the maternal role attainment scale in the study sample was 106.94, (SD = 8.68), indicating that the participants perceived high maternal role attainment. In addition, the mean score was high in all subscales.

Table 4.4 Descriptive Statistics of the Study Variables

Variables	Possible Range	Actual Range	Mean	S.D.	Skewness	Kurtosis
Stigma	12-48	12-45	25.37	7.83	.05	-.61
Maternal Health						
Self-rated health status	1-5	1-5	3.30	0.72	.42	.48
HIV symptoms index	0-24	0-20	5.08	4.34	.25	.89
Infant Health	0-16	0-9	2.37	1.89	.20	.27
Social Support	25-178	86-172	130.56	17.20	-.09	-.16
Intimacy	5-35	12-35	26.37	4.38	-.15	.17
Social integration	5-35	12-35	25.22	4.28	-.19	.14
Nurturance	5-35	16-35	26.75	3.85	-.07	-.25
Self-worth	5-35	12-35	25.97	4.19	-.01	-.03
Assistance & guidance	5-35	10-35	26.26	4.32	-.06	.23
Self-esteem	10-40	19-40	30.45	3.76	0.13	0.18
Depressive Symptoms	0-60	0-45	16.94	10.38	0.09	-0.45
Depressed affect	0-21	0-20	6.03	5.17	0.21	-0.37
Positive affect	0-15	0-12	3.67	2.80	0.24	-0.04
Somatic & retarded	0-21	0-17	6.18	4.08	0.05	-0.40
Interpersonal relationship	0-6	0-5	1.06	1.38	0.77	0.04
Score ranged 0-15 = 49.0%, at 16 and greater than 16 = 52.0%						
Maternal Role Attainment	24-120	82-120	106.94	8.68	-0.01	-0.73
Attachment	6-30	19-30	25.76	2.69	0.29	-0.66
Competence	9-45	30-45	39.90	3.78	-0.03	-0.77
Satisfaction	9-45	32-45	41.28	3.52	-0.21	-0.74

Preliminary Analysis

General statistical assumptions of the Structural Equation Modeling (SEM) are normality testing, and linear relationships testing and multicollinearity testing.

Normality Testing

The normality distribution of the study variables was estimated by computing skewness and kurtosis. In normal distribution, skewness values are between +1 to -1, and kurtosis values are not beyond +1.96 and -1.96 (Tabachnick & Fidell, 1996; Munro, 1993). The skewness values of all variables in this study ranged from -.01 to .77, and the kurtosis values ranged from -.03 to .89 (Table 4.4). The skewness and kurtosis values indicated that the data distribution was within range of normality.

Linearity Testing

The linearity and homocedasticity, two aspects of multivariate normality, were evaluated through the inspection of bivariate scatter plots. The results did not show curvilinear relationships or interactive relationships between pairs of variables.

Multicollinearity Testing

Multicollinearity occurs when intercorrelations among some variables are too high. The data were examined for the collinearity by inspecting the correlation matrix, the tolerance value, and the variance inflation factor (VIF) (Hair et al., 1998:220-222). When the correlation matrix exceeds .85, this means the two variables will be redundant. Tolerance values with less than .19 may indicate a multicollinearity problem. The $VIF > 10$ means that the variables may be redundant with the others.

In this study, the correlation coefficients for all independent variables ranged from .01 to .74 (Table 4.5), which indicated no extreme value correlations. The indicators for multicollinearity of the study variables showed that the tolerance values ranged from .35 to .79; and the value for VIF ranged from 1.27 to 2.65 (Table 4.10, Appendix J). The VIF and the tolerance value indicated no evidence of multicollinearity. In addition, the condition index and variance proportion value supported that conclusion.

In summary, the statistic assumption regarding the normality, linearity and multicollinearity testing of the data in this study was not violated the criteria for Structural Equation Modeling analysis (SEM).

Table 4.5 Correlation Matrix of All Study Variables (n = 263)

	STIG	SRH	MSY	ISY	INTE	SOC	NUR	WORT	ASS	SE	DEP	POSTM	SOM	INTER	ATT	COM	SAT
STIG	1																
SRH	.154*	1															
MSY	.343**	.382**	1														
ISY	.161**	.183**	.401**	1													
INTE	-.281**	-.276**	-.250**	-.124*	1												
SOC	-.293**	-.255**	-.272**	-.079	.628**	1											
NUR	-.134*	-.134*	-.047	-.035	.507**	.536**	1										
WORT	-.208**	-.232**	-.237**	-.147*	.618**	.583**	.680**	1									
ASS	-.302**	-.197**	-.172**	-.147*	.678**	.542**	.520**	.535**	1								
SE	-.318**	-.308**	-.255**	-.158*	.524**	.494**	.435**	.495**	.398**	1							
DEP	.445**	.190**	.423**	.287**	-.339**	-.380**	-.171**	-.260**	-.312**	-.501**	1						
POSTM	.130*	.141*	.181**	.209**	-.355**	-.240**	-.130*	-.261**	-.303**	-.307**	.256**	1					
SOM	.355**	.180**	.453**	.246**	-.257**	-.298**	-.139*	-.249**	-.210**	-.414**	.742**	.079	1				
INTER	.389**	.181**	.310**	.201**	-.245**	-.273**	-.169**	-.308**	-.176**	-.430**	.502**	.178**	.505**	1			
ATT	-.132*	-.097	-.060	-.070	.195**	.079	.201**	.188**	.144*	.257**	-.040	-.075	-.119	-.107	1		
COM	-.123*	-.172**	-.099	-.126*	.243**	.141*	.263**	.254**	.158*	.345**	-.041	-.037	-.074	-.149*	.659**	1	
SAT	.054	-.181**	-.073	-.013	.265**	.163**	.332**	.300**	.193**	.285**	-.024	-.101	-.061	-.073	.511**	.686**	1

Note: * P-value < 0.05, ** P-value < 0.01 STIG = Stigma, SRH = Self-rated Health Status, MSY = Maternal Symptoms, ISY = Infant Symptoms, INT = Intimacy, SOC = Social Integration, NUR = Nurture, WORT = Worth, ASSI = Assistance, SE = Self-esteem, DEPM = Depressive Mood, POST = Positive Mood, SOM = Somatic & Retard Activity, INTE = Interpersonal relationship, ATT = Attachment, COM = Competence, SAT = Satisfaction

Structural Equation Modeling Analysis

LISREL 8.52 was employed to test the measurement model and the structural model. In the study model, there were four exogenous latent variables and three endogenous variables. The four exogenous latent variables were stigma, maternal health status, infant health status, and social support. The three endogenous variables were self-esteem, depression, and maternal role attainment.

The structural equation modeling analysis followed the two-step procedure. In the first step, confirmatory factor analysis was used to verify the theoretical constructs of the measurement model of the latent variable. In step two, the causal model was tested and revised until a theoretically meaningful and statistically acceptable model was found.

The Measurement Model Evaluation

In structural equation modeling, the measurement model describes the relationship between the latent variables and the observed variables, which measure those latent variables. In this study, three latent variables, social support, depressive symptoms, and maternal role attainment, were investigated with confirmatory factor analysis.

The measurement model of social support scale

The construct of social support was measure by the Personal Resource Questionnaire 85 part 2 (PRQ 85 part 2). The construct indicators of the PRQ 85 part 2 were intimacy, social integration, nurturance, self-worth, and assistance and guidance subscales. For the initial measurement model analysis, the Chi-square was ($df = 5$) 44.01, with $\chi^2/df = 8.80$. The corresponding p-value was $p = .000$. The results indicated that the initial model did not fit to the sample data. The model of social support was modified by freeing a specific fixed parameter to be estimated.

The statistical results indicated that the modified model did fit the data ($\chi^2 = 5.07$, $df = 3$, $p\text{-value} = 0.17$, $\chi^2/df = 1.69$, $GFI = .99$, $AGFI = 0.96$, $RMSEA = .05$), (Table 4.6). The factor loading of all variables ranged from .81 to 1.00; and the reliability estimates, (R^2) of all observed variables ranged from acceptable to good level ($R^2 = .49$ to $.75$) (Figure 5, Appendix K, Table 4.6). The findings indicated that all observed variables represent the latent constructs of the social support variable. The intimacy

subscale had the highest factor loading, and good construct reliability on the social support variable.

The measurement model of depressive symptoms scale

The construct of depression was measured by the Center for Epidemiological Studies Depression (CES-D). The construct indicators of the CES-D were depressed affect, positive affect, somatic and retarded activity, and interpersonal relationship subscales. In the initial measurement model, chi-square ($df = 2$) was 16.15, at p -value = .00031, $\chi^2/df = 8.07$, RMSEA = 0.16, GFI = .97, AGFI = .85. The results indicated that the initial model did not fit to the sample data. The model was modified by freeing a specific fixed parameter to be estimated.

For the modified measurement model of depressive symptoms, the statistical results (Figure 6, Appendix K, Table 4.6) indicated an acceptable fit to the data ($\chi^2 = 0.83$, $df = 1$, p -value = 0.36, $\chi^2/df = 0.83$, GFI = 1.00, AGFI = 0.98, RMSEA = .000). All of the observed variables, except the positive affect subscale had high factor loading on depressive symptoms scale. The construct reliability was very low on the positive affect subscale ($R^2 = 0.10$). The results indicated that all subscales, except the positive subscale, are relatively important to the depressive symptom measures.

The measurement model of maternal role attainment scale

The construct of maternal role attainment was measured by the short-form Maternal Role Attainment Scale (SF-MRAS). The construct indicators of the SF-MRAS scale consisted of the attachment, competency, and satisfaction subscales. The statistic results indicated that the model did fit the data ($\chi^2 = 0.71$, $df = 1$, p -value = 0.39, $\chi^2/df = 0.71$, GFI = 1.00, AGFI = 0.99, RMSEA = 0.00). The factor loadings were moderate on all subscales (range from .69 to 1.00); and construct reliability (R^2) of all observed variables ranged from acceptable to good level ($R^2 = .48$ to 1.00). (Figure 7, Appendix K, Table 4.6). This indicated that all subscales were reflected the theoretical construct of the maternal role attainment.

Table 4.6 Measurement Model Goodness of Fit Index and Construct Measure

Variable	Factor loading (# Standardized)	SE	t-value	R ²	Factor score Regression
Social Support Scale					
Intimacy	1.00 (#0.86)	-	-	0.75	0.39
Social integration	0.85*** (#0.74,)	0.07	12.84	0.54	0.15
Nurturance	0.81*** (#0.70,)	0.08	10.60	0.49	0.18
Worth	0.84*** (#0.73,)	0.07	12.54	0.53	0.08
Assistance and Guidance	0.88*** (#0.76)	0.07	13.36	0.58	0.17
$\chi^2 = 5.07$, $df = 3$, $p\text{-value} = 0.17$, $\chi^2/df = 1.69$, $GFI = .99$, $AGFI = 0.96$, $RMSEA = .05$					
Depressive Symptoms Scale					
Depressive affect	0.75*** (#0.75)	0.04	18.61	0.57	-0.14
Positive affect	0.31*** (#0.31)	0.08	4.13	0.10	0.23
Somatic & retarded	1.00 (#1.00)	-	-	1.00	1.00
Interpersonal relationship	0.65*** (#0.65)	0.07	9.23	0.42	0.18
$\chi^2 = 0.83$, $df = 1$, $p\text{-value} = 0.36$, $\chi^2/df = 0.83$, $GFI = 1.00$, $AGFI = 0.98$, $RMSEA = .000$					
Maternal Role Attainment Scale					
Attachment	0.70*** (#0.70)	.04	15.87	0.49	0.00
Competency	1.00	-	-	1.00	1.00
Satisfaction	0.69*** (#0.69)	.04	15.43	0.48	0.00
$\chi^2 = 0.71$, $df = 1$, $p\text{-value} = 0.39$, $\chi^2/df = 0.71$, $GFI = 1.00$, $AGFI = 0.99$, $RMSEA = .000$					

Note *** $p\text{-value} < .001$ χ^2 = chi-square, df = Degree of Freedom, GFI = Goodness of Fit Index, $AGFI$ = Adjusted Goodness of Fit Index, $RMSEA$ = Root Mean Square Error of Approximation, R^2 = Square Multiple Correlation

The Structural Model Evaluation

The hypothesized model

The hypothesized model was composed of 7 latent variables, 4 exogenous variables and 3 endogenous variables, with seventeen observed variables. The four exogenous variables were stigma, maternal health status, infant health status, and social support. The three endogenous variables were self-esteem, depression and maternal role attainment. For hypothesized model analysis, the results showed the overall fit indices in table 4.7 and the parameter estimation is presented in figure 3.

The goodness-of-fit indices for the hypothesized structural model, Chi-square (df=105) was 278.81 at P -value = .000, with $\chi^2/df = 2.66$ and RMSEA = .08 (table 4.7), indicated that the model did not show the good fit to the sample data. The parameter estimations (Figure 3) showed the misspecified parameter between depression and maternal role attainment ($\beta = 0.21$, $^{\#}0.27$, P -value<.01). The causal paths from maternal health status ($\beta = -.08$, $^{\#}-.08$), infant health status ($\beta = -.15$, $^{\#}-.08$), and social support ($\beta = 0.17$, $^{\#}0.17$) to maternal role attainment were non-significant, and the causal path from infant health to maternal depression ($\beta = 0.20$, $^{\#}0.08$) was non-significant as well (see Table 4.11, Appendix L).

Table 4.7 Goodness-of-fit Indexes of the Structural Model of Maternal Role Attainment

Structural model	Chi-square (χ^2)	df	χ^2/df	p-value	GFI	AGFI	RMSEA
Hypothesized model	278.81	105	2.66	.00000	.89	.87	0.08
Modified model	60.49	73	0.83	0.85	.97	.95	0.000

Note ***p-value < .001, df = Degree of Freedom, GFI = Goodness of Fit Index, AGFI = Adjusted Goodness of Fit Index, RMSEA = Root Mean Square Error of Approximation

In summary, the goodness-of-fit indices for hypothesized model of maternal role attainment showed inadequate fit to the sample data, and did not satisfy in some parameters in the model. Therefore, the model needed to be explored and modified for the best-fit model.

The model modification

The hypothesized model was explored for modification. Although the hypothesized model had inadequate fit to the sample data, most path coefficients in the model between indicating factors and maternal role attainment (except from depression to maternal role attainment) were consistent with Mercer's theory of maternal role attainment. In addition, the modification index of the hypothesized model showed the greatest value on the relationship of error of variance between self-worth and nurturance variables. Therefore, the hypothesized model was modified by

freeing a specific fixed parameter to be estimated based on the results of the modification indices.

As the modified model (Figure 4) was compared against the hypothesized model (Figure 3), their fit to the data became better as indicated by decreased chi-square statistics, but increased values of other goodness-of-fit indices (Table 4.7). The goodness-of-fit indices for the modified model were that Chi-square (df=73) was 60.49 at P -value = .85, with $\chi^2/df = 0.83$ and RMSEA = .000. The modified model fitted to the sample data. The parameter estimations, standard error, and t -value are shown in Table 4.12 (Appendix M). For the modified model (Figure 4), the non-significant paths from social support to maternal role attainment, in hypothesized model, became significant. In addition, the misspecification parameter between depression and maternal role attainment became non-significant. Table 4.8 presents the summary of the causal effect to the maternal role attainment. In summary, the overall model goodness-of-fit indices indicated that the modified model fitted to the sample data. Thus, the modified model was used to answer the research question and to test the research hypothesis. The discussion in the study followed the results of the modified model.

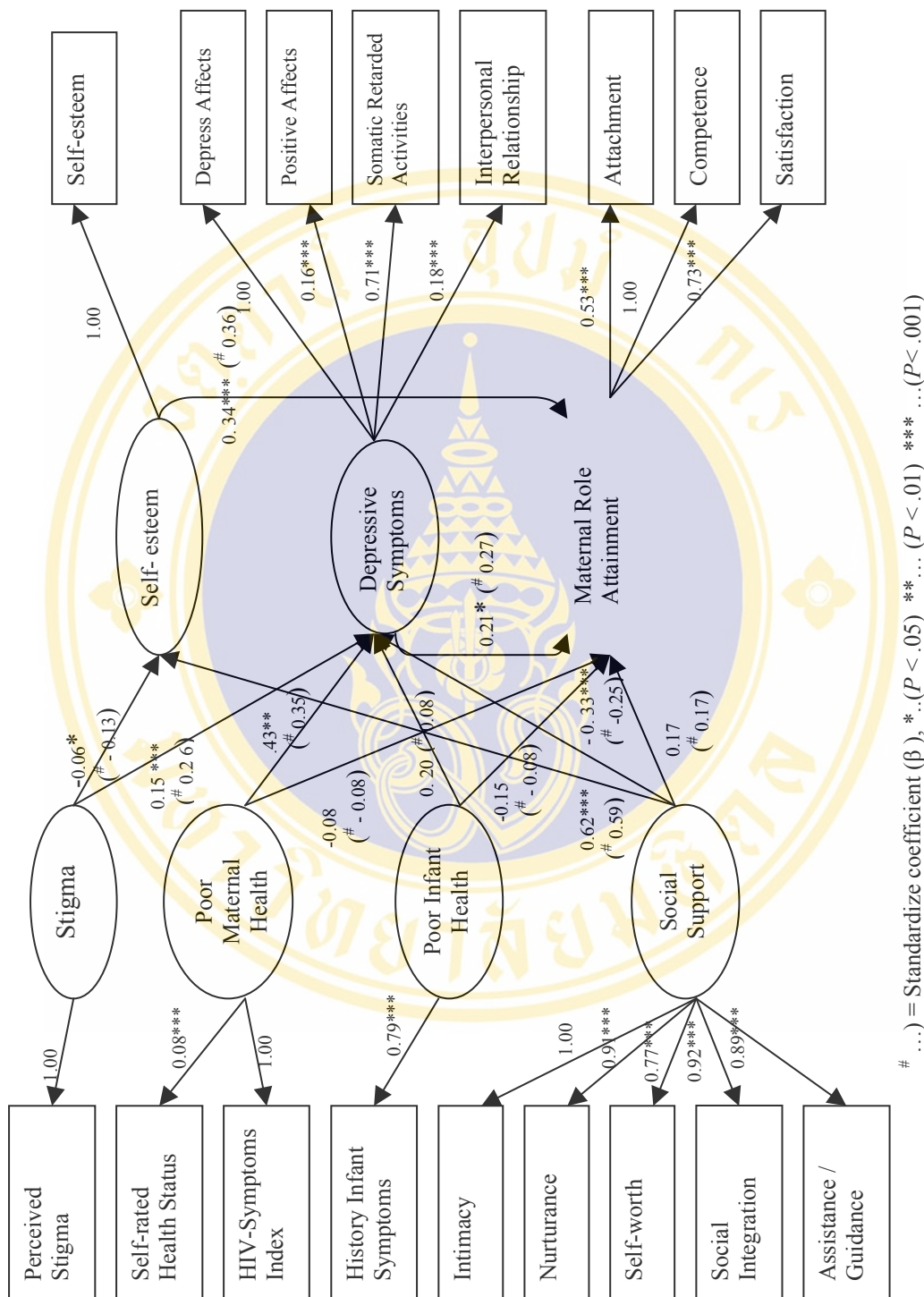


Figure 3 A Hypothesized Structural Equation Model of Maternal Role Attainment in HIV-positive Mothers

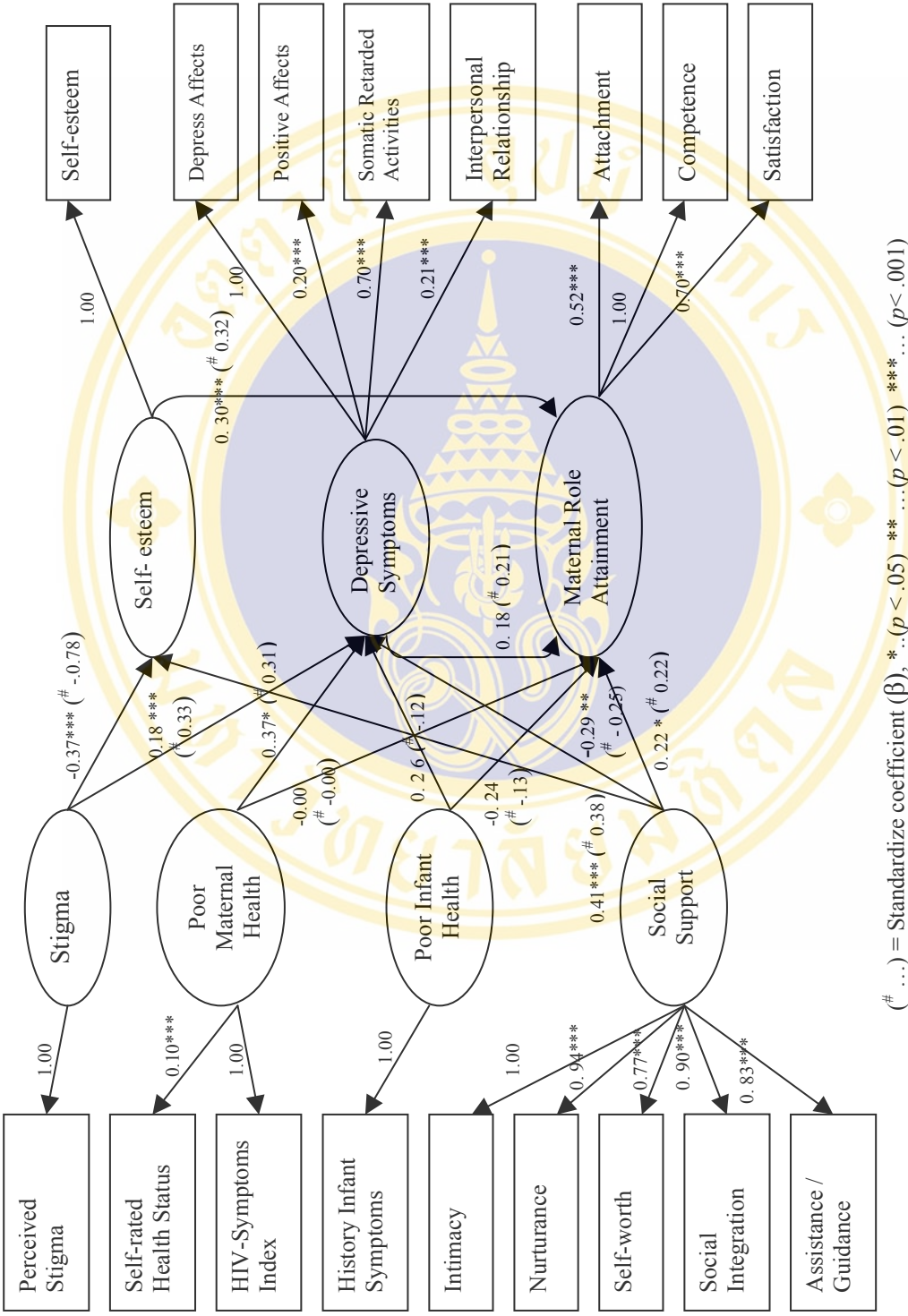


Figure 4. A Modified Structural Equation Model of Maternal Role Attainment in HIV-positive Mothers

Table 4.8 Summary Total Effects Indirect Effects and Direct Effect of Causal Variables on Maternal Role Attainment

Causal Variables	Self-esteem			Depressive symptoms			Maternal Role Attainment		
	TE	IE	DE	TE	IE	DE	TE	IE	DE
Stigma	-0.37*** (#-78)		-0.37*** (#-78)	0.18*** (#0.33)		0.18*** (#0.33)	-0.08* (#-0.18)		-0.08* (#-0.18)
Maternal Health	-	-	-	0.37* (#0.31)		0.37* (#0.31)	0.063 (#0.062)		0.067 (#0.065)
Infant Health	-	-	-	0.26 (#0.12)		0.26 (#0.12)	-0.20 (#-0.11)		0.05 (#0.03)
Social Support	0.41*** (#0.38)		0.41*** (#0.38)	-0.29** (#-0.25)		-0.29*** (#-0.25)	0.29*** (#0.29)		0.07 (#0.07)
Self-esteem	-	-	-	-	-	-	0.30*** (#0.32)		0.30*** (#0.32)
Depression	-	-	-	-	-	-	0.18 (#0.21)		0.18 (#0.21)
Structural Equation fit	R ² = 0.94			R ² = 0.53			R ² = 0.17		
Chi-square (χ ²) = 60.49, df = 73, P-value = 0.85, χ ² /df = .83, RMSEA = 0.000, GFI = .97, AGFI = .95									

Note: TE = Total Effect, IE = Indirect Effect, DE = Direct Effect, (#) = Standardized Coefficient

* $p < .05$ ($t > 1.96$), ** $p < .01$ ($t > 2.58$), *** $p < .001$ ($t > 3.52$)

Hypothesis Testing

The results of the hypothesis testing in the study were as follows.

Hypothesis 1, perceived stigma has a negative direct effect on self-esteem and social support has a positive direct effect on self-esteem.

The estimated path coefficients showed that perceived stigma had a significantly negative direct effect on self-esteem ($\beta = -0.78, p < .001$) and social support had a significantly positive direct effect on self-esteem ($\beta = 0.38, p < .001$).

Hypothesis 2, perceived stigma, poor maternal health status, and poor infant health status has positive direct effect on maternal depression, but social support has a negative direct effect on maternal depression.

The estimated parameter showed that perceived stigma and poor maternal health status had a significantly positive direct effect on maternal depressive symptoms ($\beta = 0.33, p < .001$; $\beta = 0.31, p < .05$, respectively). On the other hand social support had a significantly negative direct effect on maternal depressive symptoms ($\beta = -0.25, p < .01$). Poor infant health status had a non-significant effect on maternal depressive symptoms ($\beta = 0.12, p > .05$).

Hypothesis 3, poor maternal health status, poor infant health status and maternal depressive symptoms have negative direct effects on maternal role attainment but self-esteem as well as social support has positive direct effect on maternal role attainment.

The estimated parameter results showed that poor maternal health status, poor infant health status, and maternal depressive symptoms had a non-significant negative direct effect on maternal role attainment ($\beta = -0.003, p > .05$; $\beta = 0.21, p > .05$; $\beta = -0.13, p > .05$, respectively). On the other hand, self-esteem and social support had a significantly positive direct effect on maternal role attainment ($\beta = 0.32, p < .001$, $\beta = 0.22, p < .05$, respectively).

Hypothesis 4, perceived stigma has a negative indirect effect on maternal role attainment through maternal self-esteem and depressive symptoms

The estimated parameter indicated that perceived stigma had a significantly indirect effect on maternal role attainment through maternal self-esteem and maternal depressive symptoms ($\beta = -0.18, p < .05$).

Hypothesis 5, poor maternal health status, and poor infant health status has a negative indirect effect on maternal role attainment through maternal depressive symptoms.

The estimated parameter showed that poor maternal health status and poor infant health status had a non-significant indirect effect on maternal role attainment through maternal depressive symptoms ($\beta = 0.07, p > .05$; $\beta = 0.03, p > .05$, respectively).

Hypothesis 6, social support has an indirect effect on maternal role attainment through maternal self-esteem and maternal depressive symptoms.

The estimated parameter showed that social support had a non-significant indirect effect on maternal role attainment through maternal self-esteem and maternal depressive symptoms ($\beta = 0.07, p > .05$).

Summary

The modified model of maternal role attainment in HIV-positive mothers was fitted to the sample data. The causal relationship indicated that self-esteem, and social support had a significantly positive direct effect on maternal role attainment. Perceived stigma had a significant indirect effect on maternal role attainment through maternal self-esteem. However, poor maternal health status, poor infant health status and high depressive symptoms failed to predict maternal role attainment in this study. The results of the study partially supported the Mercer's maternal role attainment theory regarding the effect of maternal characteristic (self-esteem) and social conditions (social support and stigma) on maternal role attainment.

In addition, the findings indicated that perceived stigma had a negative direct effect on self-esteem, and social support had positive direct effect on self-esteem significantly. Furthermore, factors affected depressive symptoms were perceived stigma, and poor maternal health status. Social support had a significantly negative direct effect on maternal depressive symptoms; while infant health status failed to predict maternal depressive symptoms. The predictor variables explained the variance on the self-esteem 95%, maternal depressive symptoms 54%, and the maternal role attainment 17%.

CHAPTER V

DISCUSSION

This chapter presents the discussion of the participant characteristics, the descriptive statistics results of the study variables, and the structural model of maternal role attainment in HIV-positive mothers. The study variables were stigma, maternal health status, infant health status, social support, self-esteem, depressive symptoms, and maternal role attainment.

Characteristics of the Participants

The mean age of participants was 27 years (SD = 4.9) (Table 4.1). The majority of participants (67.2%) were aged 20-30 years, which is in the reproductive age and in the young adulthood period. The findings were consistent with other studies conducted on Thai HIV-positive mothers (Boonpongmanee et al., 2003; Jirapaet, 2000; Siriwasin et al., 1998). The peak of age distribution in the participants is congruent with the current of HIV in the baseline scenario of Thai women (TWGP, 2001), which reflects the situation that HIV-infection in Thai women has been high in the young reproductive age group, and supports the notion that the majority of women in the world with HIV are of reproductive age (Minkoff, 1998).

Nearly half of the samples (42.2%) graduated from elementary school and 41.4% from secondary school (Table 4.1). The majority of participants graduated lower than the compulsory education (9th grade) in Thailand, while a number of participants completed their compulsory education. Nearly half of the samples (42.7%) had a family monthly income ranging from 1,000 to 5,000 bath; 33.1% had 5001-10,000 bath which is less than the average national monthly family household income. The results indicated that the majority of the participants were of low socioeconomic status. This finding is similar to previous studies in Thai HIV-positive mothers (Manopaiboon et al., 1998).

At the time of data collection, nearly all the participants (87.8%) were married or were living with their partners (Table 4.1). This finding is consistent with previous study on Thai women with HIV-infection (Chaiprasit, 1994; Kongsuriyanavin, 1997).

This indicated that Thai HIV positive mothers are likely to stay in the relationship with their partner regardless of who was the source of infection. They perceived love and support from their husbands. In summary, the findings showed that the majority of the participants in this study were mature, the able to cope with difficult situation, to learn and to attain the maternal role (Mercer, 1981; 1986b). However, their low socioeconomic status, which is associated with the risk of HIV-infection women meant some limitation to take care of young child.

Regarding the features of maternal illnesses, the majority of the mothers (68.1%) were the first time mothers. The majority of the sample (80.2%) knew of their HIV-infection during their pregnancy (Table 4.2). A number of mothers who had more than one child revealed that they did not have HIV-infection in previous pregnancies. The findings were consistent with the previous studies both in Thai mothers (Kabinlapat1998; Suntarachun, 1998), and in American-African mothers (Miles et al., 1997). The findings reflected that HIV/AIDS blood testing before and during marriage was not practical for married couples.

Nearly all mothers (95.8%) attended an antenatal care clinic and took anti-retroviral drug during pregnancy. This finding supports the study of the perspective on HIV/AIDS prevention in Thailand (Aheto & Gbesemete, 2005). Thailand has implemented the program for the prevention of mother-to-child transmission of HIV (PMCT) since 1995; most Thai women have been offered voluntary counseling and testing for HIV during pregnancy. Under the policy, the intervention programs for HIV-positive pregnant women include counseling, anti-retroviral treatment, and counseling on breast milk substitution. Thus, most Thai pregnant women usually know of their HIV-infection and take antiretroviral drug under the program in order to reduce the rate of HIV transmission to their babies. However, the data shows that some mothers (14%) were not reached to the HIV prevention program because they did not attend antenatal clinic, or they had antenatal care at private clinic in which counseling and testing antibodies for HIV status were not unavailable.

A large majority of participants (81%) reported that they had disclosed their HIV-status to other people, whereas 19% had not disclosed it to anyone at all (Table 4.1). Of those mothers who had disclosed their status, half of them (48.6%) were likely to reveal their HIV status to their husband, followed by close family members and

husband (23.3%). Only one mother (0.4%) disclosed her HIV status to friends. The findings are similar to other studies of mothers living with HIV (Bennette et al., 1999; Manopaiboon et al., 1997; Miles et al., 1997; Siriwasin et al., 1998). HIV-positive mothers revealed that they were very selective about whom to disclose their HIV status. Typically, they are likely to tell of their diagnosis to close family members rather than people outside of the household because they are concerned about courtesy stigmatization of their families and their children (Black & Miles, 2002; Brown & Sittitrai, 1996; Thampanichawat, 1999).

Nevertheless, there were 19% of the samples who did not disclose the diagnosis to anyone at all including their partners. HIV-infected mothers may keep their illness secret from everyone, including their husbands, because they perceive HIV as a stigma disease and fear the negative responses such as rejection, loss of support, and abandonment by husband or others (Thampanichawat, 1999). In addition, some mothers with HIV revealed that they may not disclose their HIV status to their partners because they knew that their husbands were HIV-negative or they were unsure about their husbands had HIV infection (Manopaiboon et al., 1998; Thiangtham, Padumanondha, Sringeranyuang, Lagampan & Bennett, 2003;). Thus, they did not see any benefit in disclosing their diagnosis. Although nondisclosure of HIV status could protect these mothers and their families from negative consequences, the secrecy about HIV-infection could cause them isolation from social support and high levels of stress, and constant feeling of isolation and panic.

For infant characteristics, only 2% of infants had complication after birth (Table 4.3). The rate of infants with complication after birth in this study is less than the rate in a previous study (10%) (Kaewsuk, Sukomol, Kunchana & Oamkul, 1997). This is possibly because the PMCT program is more widely available than in the past.

Only 2.3% of mothers reported that their infants had delay growth, and developmental skills (1.1%). The prevalence of delay growth and developmental skills of infants in this study was less than the finding from previous study (Mingcharoen, 1999) in which reported that 61% (n = 13) of HIV-infected children had malnutrition in comparison with 25% (n = 32) of non infected children who born to HIV-infected mothers, and 20% of children who born to HIV-negative mothers (n = 32). In addition, the 5 developmental skills (gross motor, fine motor, receptive language, expressive

language, and personal/social skill) of HIV-infected children were delayed significantly. Mingcharoen (1999) suggested that HIV-infected children are at high risk of delay growth and development more than non-infected children. In this study, although the infant were born to HIV-positive mothers, they were under the PMCT program, in which support formula milk and medication for HIV-transmission prevention. Therefore, the infant in this study had low risk of HIV-infection and had low risk of delay growth development. However, the data of infant's growth and development in this study were derived from mothers and not professionals

Descriptive Study Variables

Stigma

The mean total score ($M = 25.37$ $S.D. = 7.83$) indicated that the mothers perceived HIV-stigma (Table 4.4). HIV-positive mothers perceived stigma because of the negative cultural views of HIV infection (Alonzo & Reynolds, 1995; Bunting, 1996; Lee, et al., 2002; Oumtanee, 2001; Sandelowski et al., 2004; Thampanichawat, 1999). However, the mean score of stigma in the sample of this study was not high. It may be due to at least four factors. First, it might be due to the information provided by various organizations. These organizations provide gentle presentations and emphasize on love, care, and harmonious living with HIV-infected people. Thus, people in society may have a better understanding of people living with HIV, and less disgust and rejection than in the past. Second, the majority of the sample revealed their infection to family members but kept it a secret from their friends. They usually perceived love and support from their family members after disclosure. Third, these mothers are under the program PMCT, which provides them with counseling from pregnancy through the postpartum period. They may feel comfortable in visiting hospital and discussing issues associated with HIV to counselors. Forth, the majority of participants had very few precise symptoms related to HIV and being asymptomatic; they were likely to experience perceived stigma less than symptomatic HIV patients (Kaewket, 2002). Thus, these mothers perceived a positive response from people who knew of their HIV status.

In comparison, Miles and colleague (2001) reported moderate levels of perceived stigma among African American mothers (Miles et al., 2001). They needed support for their fears of losing their friends, their feelings of shame, and their perceptions that

their infection was a punishment. The different findings may be due to the different cultural condition, African American mothers are considered a minority group who are at high risk of stigmatization related to both ethnicity and HIV-infection (Malcolm et al., 1998; Cohen, & Durham, 1993).

Regarding each item score of the perceived stigma scale (Appendix I), the highest mean item score was “fear of the loss of friends” ($M=2.62$, $SD = 1.06$) and “I thought my illness was a punishment for things I’ve done in the past” ($M=2.54$, $SD = 1.09$), whereas the lowest mean item score was “felt compelled to change my residence because of my illness” ($M = 1.35$, $SD = 0.73$) and “I felt blamed by others for my illness” ($M = 1.57$, $SD = 0.86$). The result suggested that these mothers perceived internalized stigma, rather than enacted stigma from the communities because they had not revealed their HIV status to their friends and other people out of their family.

Maternal Health Status

At enrollment, most participants reported that they perceived their health status as good (Mean = 3.30, $SD = 0.72$). Only 8 cases (3%) reported that they perceived it was poor health (Table 4.2). The mean total score and skewness value of HIV-symptoms index ($M = 5.08$, $S.D = 4.34$) indicated that most participants had few and mild symptoms (Table 4.4). The findings indicated that most of the participants were asymptomatic HIV, and perceived their health status as good. This may be because most of them knew of their HIV diagnosis and took anti-retroviral drugs during pregnancy. The mothers who had a low level of CD4 count continued being treated after delivery to control the progression of HIV disease and raise their immunity. Thus these mothers did not suffer from the HIV-related symptoms (Tantiwinyupong, 2000). Furthermore, the follow up for health care for themselves from pregnancy and into the postpartum period meant these mothers had information about self-care, which led them to attempt to perform good health practices in order to maintain good health, and prevent opportunistic infections (Sinpisut, & Suttharangsee, 2003; Wanthong, 2002). Therefore, the samples of this study perceived their health status as good.

Focused on the HIV-related symptoms in the study, the most common symptoms were headache, sleep problems, and forgetfulness. This result was consistent with other studies on HIV-positive mothers within 2 years of delivery (Miles et al., 2001).

The problems of thinking and remembering had been reported over time during 3- 24 months post delivery in African American mothers (Miles et al., 2001). In addition, sleep problems, problems of thinking and remembering, and headaches can be found in asymptomatic patients with HIV (Bonstein et al., 1993; Whalen et al., 1994; Yoshida, 2001). In summary, the majority of the mothers experienced few symptoms related to HIV and these symptoms were neither critical nor needing hospitalization.

Infant Health Status

The mean score on the infant's symptoms was very low ($M = 2.37$, $SD = 1.89$). The most common symptoms for these infants were common cold, fever, and diarrhea in that order. There were very low score for pneumonia and otitis media. Some infants in this study (20.5%) did not experience any symptoms in the 3 months prior to the study (Table 4.3). These findings indicated that these infants experienced mild infections which are similar to the common symptoms in the infants born to HIV-negative mothers (Burr, 1993; Sutachayanon, 1998; Tosilakul, et al., 2002).

The good levels of infant health in this study may have been a result of the intervention under the PMCT program. The program starts anti-retroviral therapy for the mother during pregnancy and continues with this therapy to their infants after birth in order to reduce the risk of HIV mother-to-child transmission, and the complications related to HIV disease in the infants. In addition, these infants had formula milk support from social welfare for one year. Thus, these infants are at low risk of both infections and malnutrition that associated with the well-being. Furthermore, most of the mothers had preparations in taking care of their babies from healthcare providers. These comprehensive interventions can result in decreasing the complications related to HIV infection (Kumpet, 2000; Noirungsee, 2004; Suthachayanon, 1998).

Social Support

The mean score of social support was 130.6 ($SD=17.2$, ranged 86-172). This indicated that the participants perceived a high social support. Similar findings have been reported in other studies, which used the same measurement of social support (Prasopkittikun, 2001; Sittichamlong, 1999; Soomlek, 1995; Wongsabut, 1996). Regarding the social support subscale, HIV-positive mothers in this study had a high perceived social support in all subscales.

The findings could mean that the majority of HIV-positive mothers in this study have been living with their partners and close family members who are likely to provide love and support to them, even though they know that these mothers had HIV (Cheaysawan, 1996; Kabinlapat, 1998; Thiangtham et al., 2003; Vongpitakroj, 2000). The partner and close family members are the most important group to provide support for people with HIV (Jirapaet, 2000; Yohida, 2001). In addition, the other important resources for HIV-positive mothers are health care providers and non-government organizations (Changkaew, 2002; Kanakul, 2000; Limruangrong, 1997; Vongpitakroj, 2000;). Health care providers may provide support for clients in self-care and in nurturing their active involvement in medical and health protocols. Furthermore, some mothers go to participate in non-government organization which provides psychological support and other supports such as training for extra income, support of recreation and consultation as well.

Self-esteem

The mean score of self-esteem was 30.45 (SD=3.76). The findings indicated that the participants in this study had high level of self-esteem. The findings are consistent with other studies in Thai HIV-negative mothers (Soomlek, 1995; Srisamorn, 2000), and HIV-positive mothers (Sawasdipanitch et al., 1999). Self-esteem is developed by a learning process that involves the interactions of the individuals within the social environment (Coopersmith, 1967, Rosenberg, 1965). In this study, the majority of participants were in young adulthood, a level of maturity in which they could develop some level of self-esteem. In addition, they were living with their partners, and had opportunities to talk with counselors who provided them with love, acceptance, and care. These situations help these mothers perceive themselves positively toward self and enhance self-esteem.

Furthermore, “being a mother” elevates the status of HIV-positive women in the community (Sandelowski, & Barroso, 2003; Wesley et al., 2000). HIV positive mothers perceive motherhood as being the central to women’s lives, as a source of strength, sense of self as a whole woman, and self-esteem (Andrews et al., 1993; Sandelowski, Wesley et al., 2000, & Barroso, 2003). The level of self-esteem in this study supports the notion that childbearing may be their only means of improved self-worth and self-esteem for many women with HIV (Taylor, 1989).

Regarding the mean item score, the highest score was on “I am able to do things as well as most other people” ($M = 3.26$, $SD = 0.56$), and followed by “I feel that I am a person of worth” ($M = 3.23$, $SD = 0.59$) and “I take a positive attitude toward myself” ($M = 3.23$, $SD = 0.56$) (Appendix I). These responses indicated that HIV-positive mothers perceived self-worth and capability in comparison others. This could be because the counseling interventions provided these mothers with abilities to take care of their babies in the right way, so that their infants retained good health. These experiences can lead HIV-positive mothers to a positive self-evaluation that maintains and improves their self-esteem.

Depression

On the depressive symptoms scale, the mean score of the whole sample was 16.94 ($SD = 10.4$), which is higher than the standard cutoff score (of 16). This indicated that they were at risk of depression. The mean score of depressive symptoms in this study was greater than the average reports in postpartum mothers without complication ($M=10.2-15.53$) (Gerdprasert, 1999; Phadungyotee, 2002, Withayaprapaipan, 2003). The results are congruent with the finding in other studies which have reported that mothers with HIV encounter with multiple life stressors and depressive symptoms is the most common of psychological responses (Faithful, 1997; Jones, et al., 2001; Mc Enany, Hughes, & Kathryn, 1996; Mellins & Ehrhardt, 1994; Semple et al., 1997).

Half of the sample (52%) had a total score above the cut off for depressive symptoms (Table 4.4). The percentage of HIV-positive mothers who had high depressive symptoms in this study is similar to those reported in other studies that used the same instrument (CES-D) and the same cut off point score (Boonpongmanee et al., 2000; Manopaiboon et al., 1997; Miles et al., 1997). Miles and her colleague (1997) reported the prevalence of African American mothers with at risk scores cutoff (16 and over) ranged from 39%-45% at varying times during 3-12 months postpartum period (Miles et al., 1997). In addition, it is similar to those reported in other high risk mothers such as mothers with multiple sclerosis (Hall et al., 1996). In comparison, the estimated prevalence of high depressive symptoms in HIV-positive mothers is much greater than those estimated in other groups of mothers. O'Hara and Swain (1998) reported that approximately 13% of women experience mood disorder at sometime

during the first year after delivery. Thus, the findings in this study support the notion that depressive disorders are commonly experienced by individuals with HIV (Moneyham & Aranda-Naranjo, 1999; Moneyham et al., 2000; Sowell, & Valente, 2003), and reflect the fact that HIV-positive mothers encounter a lot of stress during motherhood adaptation.

The interpretation of depressive symptoms in HIV-positive mothers would be caution because the signs of depressive symptoms may have some biological basis associated with immunodeficiency and may be a side effect of some HIV medication. However, the majority of the mothers in this study had a low score on HIV symptom indices. In addition, almost of the participants (82.8%) did not take antiretroviral drugs and other medications after delivery. Thus, the findings in this study provide the information of the risk of depressive symptoms in Thai HIV-positive mothers whose infant aged 3-12 months.

Maternal Role Attainment in HIV-positive Mothers

The findings show that these mothers perceived that they had high maternal role attainment ($M=106.9$, $SD=8.7$) (Table 4.4). This finding supports the notion that the mothers usually achieve the maternal role from 3-12 months after delivery (Mercer, 1985b). The findings are consistent with data from other studies which reported that HIV-positive mothers had the ability to take good overall basic responsibility for their infant needs including growth and development, attachment, nutrition, and spiritual growth (Keawnil, 2003; Limrungrong, 1997; Noirungsee, 2004; Pichaipat, 2000; Sutachayanon, 1998).

The high level of maternal role attainment score in this study may be due to the following conditions. First, these mothers were under the PMCT program which provided these mothers with counseling and information related to being a mother. Thus, these mothers had support during maternal role transition and had confidence to take care of their babies. Second, HIV-positive mothers view their infants are the most important one of their lives. They have positive feelings about motherhood; and have a great hope to see that their infants will not have HIV-transmission (Jirapaet, 2001; Wesley et al., 2000;). The positive feeling about motherhood leads these mothers to have a good attitude, take responsibility for their infants, create a good relationship with their babies, and attain the maternal role. Finally, considering the characteristic of

the mothers in this study, the majority of the mothers in this study were ranged in age from 20-35 years, asymptomatic HIV mothers, and lived with their partner. These characteristics reflected the fact that HIV-positive mothers in this study had physical and psychological maturity in becoming a mothers and attaining the maternal role. Thus, these mothers have the possibility of achieving maternal role attainment.

The findings show that the mean score was also high in all subscales of maternal role attainment. In the maternal-infant attachment subscale, which describes a mutual, reciprocal relationship between mother and infant (Erickson & Kurz-Riemer, 1999), these mothers perceived high attachment with their infant ($M = 25.8$, $SD=2.7$) (Table 4.4). The results were consistent with the other studies focusing on the maternal-infant attachment, an aspect of maternal role attainment, in Thai HIV-positive mothers (Nettip et al., 1998; Salayakanon, 1997). HIV-positive mothers develop positive affection with their babies since they decide to continue pregnancy despite having HIV infection. Thus, the development of love and bonding occurs gradually and continuing over time in these mothers-infants couples from pregnancy to after delivery.

For the competency subscale, HIV-positive mothers in this study perceived a high level of role competency ($M = 39.9$, $SD=3.8$) (Table 4.4). The results indicated that these mothers perceived sensitivity responses to infant need and nurturing behaviors that promote the infant health and development (Mercer, 1995). In this study, HIV-infected mothers had no serious symptoms and had high self-esteem. They had benefited from the health care policy program of follow up their infants in both growth and development and infection of their infant up to 18 months. Furthermore, the majority of mothers in this study perceived high social support including intimacy, nurturance, guidance, and self-worth. Therefore, these mothers can seek information and acquire knowledge of parenting behavior, feel confident to take care of their babies and develop competence to the maternal role. In addition, the out come of maternal task such as healthy infants lead these mothers perceived the competency of maternal role. Therefore, these mothers felt confident in taking care of their babies and competent in the maternal role. The findings were congruent with other studies which reported that HIV-positive mothers had capability to take care of their infants (Keawnil, 2003; Noirungsee, 2004; Pichaipat, 2000; Suntararachun, 1998).

For the satisfaction subscale, these mothers perceived a high level of role satisfaction ($M = 41.3$, $SD=3.5$) (Table 4.4). In this study, the HIV-positive mothers and their infants had a low severity of the disease and HIV-related symptoms. They viewed their children as healthy and looking like other children born to HIV-negative mothers. Because of the good health of the infants, HIV-positive mothers hoped that their babies would be HIV-negative and grow up as other children. In comparison with their older children, some HIV-positive mothers reported that the growth and development of this child was not worse than the older children. Thus, these positive feedbacks lead these mothers to enjoy and be satisfied in the maternal role. This finding is consistent with another study (Sameintpetch, 1998), which reported that HIV-positive mothers with good levels of maternal and infant health status had a high level of satisfaction in the maternal role.

The Overall Model and the Relationship Stigma and Self-esteem

Path analysis indicated that perceived stigma had a significantly negative effect on maternal self-esteem ($\beta = -0.78$, $p < .001$). This indicated that HIV-positive mothers, who perceive high stigma, were likely to have low self-esteem. Because of HIV stereotype, which means that HIV infection associated with deviant behaviors, contagion and danger to communities, mothers with HIV translated the negative social perception of HIV infection into the negative self-perception; the results in feelings of self less worthiness and low self-esteem (Malcolm et al., 1998). This finding is consistent with others who have reported that perceived stigma has strong negative impacts on self-esteem (Fife & Wright, 2000). Thus, a high level of perceived stigma can decrease the self-esteem in HIV-positive mothers.

Social Support and Self-esteem

Social support had a significantly positive direct effect on self-esteem ($\beta = 0.38$, $p < .001$). The finding indicated that HIV-positive mothers who perceived high social support can increase self-esteem. Social support serves as assistance and protective factors for psychosocial well being including self-positive perception (Langford et al., 1997). In this study, the majorities of the HIV-positive mothers revealed their HIV status, were living with their partners, and were under the PMCT program. In addition,

some mothers attended support group, which provided by non-government organization. Thus, they perceived high level social support, which contributed to positive feeling about themselves and self-esteem. The results in this study are consistent with other studies which have reported that functional social support had a significant positive direct effect on self-esteem in people with HIV (Hall, Kotch, Browne & Rayens, 1996). In addition, a positive relationship between social support and self-esteem has been found in first time mothers (Soomlek, 1995), and working mothers (Phumonskul, 2000).

Perceived Stigma and Maternal Depressive symptoms

The finding indicated that perceived stigma had a positive direct effect on maternal depressive symptoms ($\beta = 0.33$, $p < .001$). It is indicated that the mothers who perceived high stigma, had high depressive symptoms. Perceived stigma has been demonstrated as having a negative effect on social interaction, and emotional well being including depressive mood (Fife & Wright, 2000). The mother with HIV infection reflects the deviant situation of a cultural norm. The stereotype of HIV that automatic association HIV-positive women as the vector for transmission of the disease to their infants, intensified the intensities depressive mood of mothers with HIV (Sowell & Christensen, 1996). These mothers protect themselves and their families by controlling information to maintain moral identity and manipulating their environment in an attempt to keep their HIV status secret. These complex situations may affect them in terms of social isolation and emotional distress. The literature supports the notion that perceived stigma places HIV-positive mothers at risk of depression (Moneyham et al., 1997). The positive relationship between perceived stigma and maternal depressive symptoms has been found in African-American HIV-positive mothers (Miles et al., 1997).

Maternal Health Status and Maternal Depressive symptoms

The findings in this study indicated that HIV-positive mothers who perceived poor maternal health status and experienced more symptoms had high depressive symptoms ($\beta = 0.31$, $p\text{-value} < .05$). It means that the more symptoms the HIV-positive mothers had, the more depressed mood they experienced.

HIV-positive mothers with poor health status had increase depressive symptoms and at risk of depression. The findings support the literature that the negative alteration

in health status is a stressor concerned by HIV-positive mothers and related to depressive symptoms (Gray, 1999; Harrison & Stuifbergen, 2002; Krulik et al., 1999). HIV-positive mothers who perceive their health as poor, and experience HIV-related symptoms feel that they have some limitations in working and need more rest. These conditions may remind them of AIDS developing. HIV-related symptoms, an indicator of HIV disease progression, have been demonstrated strong association with depressive symptoms (Belkins et al., 1992; Bennette et al., 1999; Flaskerud & Ungvarski, 1995; Miles et al., 2001). The relationship between poor maternal health status and depressive symptoms has been found in HIV-infected mothers consistently (Miles et al., 1997; Moneyham et al., 2000).

Social Support and Maternal Depressive symptoms

Social support had a significantly negative direct effect on depressive symptoms significantly ($\beta = -0.25$, $p\text{-value} < .01$). The results of this study suggest that the HIV-positive mothers who perceived high social support were less likely to experience of depressive symptoms. Perception of social support, the belief that they have support available, may help HIV-positive mothers simply feel better and comfortable (Serovich et al., 2001). The literature has been demonstrated that social supports contribute to positive adaptation outcome in stress event and mitigate depressive symptoms in postpartum mothers (Beck, 2001; Harrison & Stuifbergen, 2002; Hong, 2000; Kabinlapat, 1998; Kerdprasert, 1999; O'Hara & Swain, 1996; Tarkka et al., 1999; Wongvisetsirikul, 1997)

The negative relationship between perceived social support and depressive symptoms has been found in women with HIV (Hudson, Lee, Miramontes & Portillo, 2001; Moneyham et al., 2000; Serovich et al., 2001). However, the finding from this study is inconsistent with the study in African-American mothers (Miles et al., 1997). Miles and her colleagues (1997) reported that social support, which measured by community-family support, did not correlate with depressive symptoms (Miles et al., 1997). In contrast with this study, they measured social support in terms of the level of satisfaction with help related to parenting their infants; this measure may not be sensitive to general depressive mood.

Infant Health and Maternal Depressive symptoms

The finding of this study failed to support an effect of poor infant health status on maternal depressive symptoms. There was an insignificant predictor of depressive symptoms in HIV-positive mothers ($\beta = 0.12$, $p\text{-value} > .05$). The finding is inconsistent with the study in mothers with abnormality of babies (Disornatiwat, 1998) which reported that abnormality in infants has a positive relationship with depressive symptoms. The different findings may be due to the difference of infant health conditions. In Disornatiwat's study, the severity of infant health status was classified by the cluster of groups defined by the presence or absence of abnormality, while in the current study, the number and frequency of symptoms experienced was considered. The abnormality of an infant may lead to the need for intensive medical care, a possibility which would make the mother considered. Thus, abnormality of infants can contribute to high depressive symptoms.

On the other hand, in this study, the infants born to HIV-positive mothers looked like normal infants, and had not been definitely diagnosed with HIV/AIDS diagnosis. When considering the experience of infant symptoms after birth, the majority of the infants had mild symptoms, no complications and no hospitalization for illness. Thus, the HIV-positive mothers in this study did not encounter extra burdens of caring for the infants. Furthermore, these mothers felt relieved of tension of having HIV-infected infants and continued to hope for the prospect of having a HIV-negative child. As such the score on infant health did not vary, and the relationship between poor infant health status and depressive symptoms did not occur. Similar finding have been reported in another study (Hall, et al., 1996).

Focusing on the effect of infant health and mother's depressive symptoms, the findings have been shown the relationship between mother's depressive symptoms and worry about infant health (Miles, et al., 1997), and between mother's depressive symptoms and concern about poor infant health status (Harrison & Stuifbergen, 2000). The mother's perception of the infant health or illness may not correspond to an objective symptom scheme. Therefore the measure of infant health status should be considered these factors in further study.

Self-esteem and Maternal Role Attainment

Self-esteem had a significant direct effect on maternal role attainment ($\beta = .32$, $p < .001$). This finding indicated that HIV-positive mothers with high self-esteem perceived success in attaining maternal role. HIV-positive mothers who have high self-esteem perceive themselves as being capable and worthy (Coopersmith, 1981; Rosenberg, et al., 1995). Thus, they can demonstrate more adaptive and appropriate behavior with their infants and have confidence to achieve the maternal role (Mercer, 1986c; Mercer & Ferketich, 1994b; Walker et al., 1986). The result of this study is consistent with other studies, which have reported that self-esteem has a positive direct effect on maternal role attainment (Phumonskul, 2000), and maternal sense of competency (Soomlek, 2000). In addition, positive self-esteem has been reported as a consistent predictor of maternal competence and maternal infant attachment, components of maternal role attainment, at 1 month and 8 months in a diverse group of mothers (Mercer & Ferketich, 1994b; 1994 a). A positive relationship between self-esteem and maternal role attainment has been found in postpartum mothers (Buaphut, 2002; Hankla, 2001). The findings in this study support the causal relationship between self-esteem and maternal role attainment as proposed in Mercer's maternal role attainment theory (Mercer, 1981; 1995; 1990).

Maternal Depressive Symptoms and Maternal Role Attainment

The findings indicated that high depressive symptoms failed to predict maternal role attainment ($\beta = 0.21$, $p > .05$). The result is not consistent with Fowles (1998) who reported that maternal depression which measure by depressive symptoms measure, had a negative relationship with maternal role attainment in postpartum mothers. The different findings may be due to the research conditions. In Fowles's study, the mothers had been studied during the 9-14 weeks postpartum period. Similarly, Mercer and Ferketich (1994b; 1994a) reported that high depressive symptoms had significantly negative relationship with maternal competence, and maternal attachment, the components of maternal role attainment, in mothers at hospitalization and at 1 month post partum period. Of those findings indicated that high depressive symptoms may significant affect maternal role attainment at early post partum period, and during 1-3 months postpartum periods, which is the formal and informal stage of maternal role attainment. In those stages of maternal role attainment, mothers learn to

adjust their behaviors to fit their infants. Thus, high depressive symptoms may cause them feel uncomfortable in adjusting to the maternal role (Fowler, 1998; Mercer, 1995). In This study, HIV-positive mothers were included over a long postpartum period mothers (3-12 months, with mean 7.4 months, SD = 3.1) (Table 4.3). During the 3-12 months post partum period, Mercer (1985a) reported that most mothers develop maternal role and commit to their infants. This may be why the high depressive symptoms failed to predict the maternal role attainment in this study. Further study should be done to investigate the relationship between high depressive symptoms and each stage of the maternal role attainment process within 1 year postpartum including during pregnancy, formal, informal, and personal stages of maternal role attainment.

In addition, while the prior studies have demonstrated that maternal depressive symptoms have a negative effect on maternal role attainment (Fowles, 1998), some depressed mothers demonstrated that they developed strong sense of maternal protectiveness and established maternal identities (Lesser, Koniak-Griffin, Anderson, 1999). Foss and colleague, (1999) reported that depressed mothers demonstrated a maternal-infant interaction similar to non-depressed mothers. Foss and colleagues found that depressed mothers with other positive factors in their life such as education demonstrated slightly better performance on maternal-infant interaction (Foss, Hirose & Barnard, 1999). Similarly, some HIV-positive mothers demonstrated that they keep energy in mothering role by motivating feelings of optimism and autonomy (Jirapaet, 2000). Thus, it means that while HIV-positive mothers had emotional responded to stressor, they try to keep their mothering role. These findings support the notion that high depressive symptoms per se may not affect the maternal role attainment process. Other factors may enhance their abilities in childrearing despite an unsteady emotional mood. Further study needs to explore the relationship between maternal depressive symptoms with its moderators and maternal role attainment such as maternal depressive symptoms with low self-esteem and maternal role attainment.

Maternal Health Status and Maternal Role Attainment

Poor maternal health had an insignificant direct effect on maternal role attainment ($\beta = -0.003$, $p > .05$), and had an insignificant indirect effect on maternal role attainment through depressive symptoms ($\beta = -0.06$, $p > .05$) (Table 4.8). The

results are inconsistent with a previous study in HIV-positive mothers (Sameintpetch, 1998), which reported a positive correlation between maternal health status and maternal role satisfaction among HIV-positive mothers. The finding did not support a principle of Mercer's theory, that maternal illness can deplete energy for motherhood (Mercer, 1986c). In this study, although the mothers had been infected with HIV, most of them had very few HIV-related symptoms. They were able to engage in maternal role adaptation after delivery in a similar way to the mothers without complications. Thus, the maternal health status score in this study failed to predict maternal role attainment. In addition, even though, maternal health had a significant direct effect on depressive symptoms, the maternal depressive symptoms did not show an effect on maternal role attainment. Thus, the maternal health status in this study did not have indirect effect on maternal role attainment through maternal depressive symptoms.

The findings in this study are consistent with other studies which reported that the relationship between maternal health and maternal competency, which is the component of maternal role attainment, was insignificant in high risk mothers and low risk mother (Mercer & Ferketich, 1994b).

Infant Health Status and Maternal Role Attainment

Infant's health status had an insignificantly direct effect on maternal role attainment ($\beta = -0.13$, $p > .05$), and had an insignificant indirect effect on maternal role attainment through depressive symptoms ($\beta = 0.03$, $p > .05$) (Table 4.8). The finding is inconsistent with a study on mothers with low birth weight babies (Rujiraprasert, 1996). This result may be due to the characteristics of infant conditions. In the study by Rujiraprasert (1996), the low birth weight infants were at high risk of serious health problems such as respiratory distress, hypothermia and other conditions. Thus, the mothers with low birth weight perceived that they might not have ability to take care of their babies and were afraid of being close and interacting with their infants; which consequently interrupted the maternal role attainment process (Mercer, 1981; McGrath & Meyer, 1992). In addition, the low birth weight infants may have so serious health problems that they cannot initiate cues to encourage their mothers to recognize their needs. These situations can interrupt the maternal confidence, satisfaction, and maternal-infant attachment process (Mercer, 1986c). In this study, over 20% of the infants did not experience any health problems and majority of infants experienced

very few symptoms and non-serious health problems. They can interact with their mothers and can initiate cues to encourage their mothers to recognize and respond their need appropriately. Thus, the infant health status in this study did not affect the process of maternal infant interaction and maternal role attainment. These findings are supported by other studies in mothers with healthy infants (Leezen, 2000; Mercer, 1986b; Mercer & Ferketich, 1994b),

Focused on the negative relationship between infant health status and maternal role attainment, Mercer (1986) suggested that the maternal-infant separation that is associated with the severity of infant illness is a confounding factor for the relationship between the infant illness and maternal role attainment. The infant illness that needs treatment in hospital can interrupt the attachment process because of mother-infant separation. In addition, a mother may avoid attaching to her infant if she is afraid that their infant will die. Thus, the measurement of infant health should be concerned the other aspects such as the mother-infant separation due to infant illness, and the dependent of advanced treatment and instrument, and the mother's perception of their infant illness, that are sensitive to the severity of infant illness.

Social Support and Maternal Role Attainment

Social support had a significantly positive direct effect on maternal role attainment ($\beta = 0.22$, $p < .05$). Social support had an indirect effect on maternal role attainment through self-esteem and depressive symptoms insignificantly ($\beta = 0.07$, $p > .05$). The findings in this study postulated that HIV-positive mothers who perceived high social support are more likely to attain maternal role. HIV-positive mothers gain benefits of social support in emotional well-being, increase self-confident, and keeping motivation to deal with stress situation and burden during attaining the maternal role (Jirapaet, 2000; Jirapaet, 2001; Limruangrong, 1997). The findings in this study are consistent with results of the experimental that social support helps these mothers trust and built up self-confidence to interact with their infants, and provide care to their babies, and achieve maternal role adaptation (Jirapaet, 2000; Tubglam, 2001; Tosilakul et al., 2002;). Therefore, the results of this study support the notion that social support is an important factor affecting maternal role attainment (Koniak-Griffin, 1993). A positive relationship between social support and maternal role

attainment has been reported consistently in other studies (Kamsiengsai, 1996; Leesen, 2000; Rujiraprasert, 1996).

However, social support had a non-significant indirect effect on maternal role attainment through depressive symptoms and self-esteem ($\beta = 0.07$, $p > .05$). The model (Figure 4.) illustrated that social support had direct effect on self-esteem, and self-esteem had positive direct effect on maternal role attainment. It means that social support had an indirect effect on maternal role attainment through self-esteem. Social support had significant negative effect on depressive symptoms; the maternal depressive symptoms did not affect maternal role attainment. Thus, the indirect effect of social support on maternal role attainment was non-significant. The model in this study demonstrated only a direct effect of social support on maternal role attainment in HIV-positive mothers.

Perceived Stigma and Maternal Role Attainment

Perceived stigma had an indirect effect on maternal role attainment significantly ($\beta = -0.18$, $p < .05$). Because maternal depressive symptoms did not affect maternal role attainment, the indirect effect on maternal role attainment of perceived stigma could have been through self-esteem. It is indicated that HIV-positive mothers with high perceived stigma will have low self-esteem and low achievement of maternal role. As mention above, the negative social perception of HIV infection is translated into self-negative perception and low self-esteem in HIV-positive mothers. Thus, they may often fear and feel isolation that leading to decrease self-confident in attaining maternal role. These results explicate the Mercer's theory that HIV-stigmatization is the social stress that can affect maternal role attainment process.

Contribution to Nursing Science

The model of maternal role attainment in HIV-positive mothers in this study is developed based on Mercer's maternal role attainment theory in which proposes that maternal characteristics, infant characteristics and environment conditions can affect the maternal role attainment. The significant effect of self-esteem and social support on maternal role attainment as found in the tested model supported partially Mercer's theory regarding the effect of maternal characteristic and social condition on maternal role attainment.

In addition, the findings in this study extended Mercer's theory by explicating that HIV- stigma, the uniqueness social situation of people with HIV, affected maternal role attainment in HIV-positive mothers indirectly through maternal self-esteem.

Furthermore, this study contribute the tested model, which was considered as a preliminary middle range theory, to nursing science to explain and predict the factors affecting maternal role attainment in HIV-positive mothers. The result of this study can guide intervention programs to facilitate HIV-positive mothers in attaining the maternal role and can guide further studies to replicate researches and expand the maternal role attainment theory.

Methodological Aspects

The methodological aspects related to the study results in this study are focused on instrumental aspect.

Instrumental Aspect

Of the instruments used in this study, the Demi's perceived stigma scale was translated into Thai with back translation technique. The reliability and validity of this measurement was within the acceptable range. However, this developed measurement is based on American culture. The cross cultural translation is needed for explicated validity and reliability of measurement in Thai culture.

The maternal role attainment construct encompasses behavioral (demonstrated) and subjective (perceived) facets of mothering role (Koniak-Griffin, 1993, Mercer, 1981). In this study, the maternal role attainment was measure by self-rating questionnaire that represent only perceived maternal role attainment aspect. Although, the perceived maternal role attainment scale is developed based all Thai culture, and having good psychometric property, this maternal role attainment measurement scale may not be corresponded with the specific mothering behavior. Therefore, the measure of maternal role attainment should be included both the self-rated questionnaire and observation behavior for increasing the data adequacy. Using of the two types of measures (self-reported and observation) can increase the confidence in the trustworthiness of the data and the interpretation of the data.

For the maternal health status factor, the theory proposes that illnesses or symptoms can deplete energy to maternal role that further resulted in interrupting the process of maternal role attainment (Mercer, 1986a; Koniak-Griffin, 1993). Thus, the measure of maternal health status should reflect not only the number and severity of illness and symptoms related to disease but should reflect the energy level such as the level of fatigue in these mothers.

For the infant health status, the measure reliability was 0.62, which is likely low level in this study. The reliabilities of measurement could be acceptable at Chronbach alpha 0.70 (Kline, 1998). In addition, the previous evidences suggested that the infant health that involved the mother-infant separation and the maternal perception may interrupt the process of maternal role attainment. The infant health status measure in this study is the number of infant symptoms and illnesses that may not reflect the perception of mothers and the mother-infant separation. Thus, further modification of this measurement in the future researches is needed.

For the depressive symptoms measure in this study, the cut off score are based on American people norm that may or may not match to Thai people. Thus, the validity of the cut off score should be replicated in Thai mothers.

CHAPTER VI

CONCLUSION

This chapter presents the summary of the study and discusses the implication and recommendations of the research findings.

Summary of the Study

The purpose of this study was to test a structural equation model to explain and predict the factors affecting maternal role attainment among Thai HIV-positive mothers. The hypothesized model was developed on the basis of Mercer's maternal role attainment theory (1995), and taking into account the phenomenon of HIV-positive mothers. The selected variables were maternal health status, self-esteem, depressive symptoms (as mother characteristics), infant health (as infant characteristic), stigma, social support (as environmental conditions), and maternal role attainment.

Simple random sampling was conducted to identify the samples of 263 HIV-positive mothers whose infants were aged between 3-12 months with inconclusive HIV-status diagnosis. The inclusion criteria were age 18 years or over, no serious mental health problems, and having achieved some level of maternal role attainment. Data collection was conducted at the pediatric HIV-follow-up clinics and social welfare departments in government hospitals in Bangkok Metropolitan area and other provinces, Thailand, from December 2004 to July 2005.

This study employed the following instruments for data collection (a) The Short-form of Maternal Role Attainment Scale (SF-MRAS) developed by Phumonsakul and colleagues (2003); (b) The Center for Epidemiologic Studies Depressive Symptoms Scale (CES-D); (c) Rosenberg's Self-esteem Scale; (d) Self-rated Health Status; (e) The HIV-symptom Index; (f) The History of Infant Illness; (g) Personal Resource Questionnaires 85 part2; (h) Demi's HIV-stigma Scale; and (i) The Demographics and Background Information Questionnaire. The content validity of the measurements was assessed by experts in HIV related areas. Some modifications were made following the expert advices. The reliability of instruments in this study was tested from the sample; they ranged from 0.62 to 0.91. Data analysis employed SPSS 11.5 for

descriptive data, and LISREL 8.52 for confirmatory factor analysis and testing the model.

The sample was 263 Thai HIV-positive mothers. The age of the participants ranged from 18 to 40 years with a mean of 27.4 years ($SD = 4.9$). Nearly half of the participants had graduated from elementary school (42.2%), and had a family monthly income of less than 5000 baths (42.7%). The majority of samples was first time mothers (68.1%) and had normal deliveries (72.6%). Nearly all participants were married or living with their partners (87.8%), had disclosed their HIV-status to husband or close family members (81%), attended antenatal care clinics (95.8%) and took antiretroviral drugs during pregnancy (85.9%).

For infant characteristics, the mean of infants' age was 7.4 months ($SD = 3.1$). Nearly half of them were female (45.6%). Nearly all infants received anti-retroviral drugs after delivery (99.3%), had no complications (97.3%), and had no admissions to hospital after birth (92.8%). Nearly all infants had normal growth (98.7%) and development (98.9%).

The results of this study revealed that the goodness-of-fit indices for the hypothesized model of maternal role attainment showed an inadequate fit to the sample data, and did not satisfy some parameters in the model. Therefore, the hypothesized model was modified for the best-fit model by freeing a specific fixed parameter to be estimated based on the results of the modification indices. The goodness-of-fit indices for the modified model were that Chi-square ($df=73$) was 60.49 at p -value = .85, with $\chi^2/df = 0.83$ and RMSEA = .000, which indicated that the modified model was fit to sample data regarding the overall goodness-of-fit-index.

The causal relationship indicated that self-esteem ($\beta = .32, p < .001$), and social support ($\beta = 0.22, p < .05$) had a significant positive direct effect on maternal role attainment. Perceived stigma had a significant indirect effect on maternal role attainment through maternal self-esteem ($\beta = -0.18, p < .05$). However, poor maternal health status, poor infant health status and high depressive symptoms failed to predict maternal role attainment in this study.

In addition, the findings indicated that perceived stigma had a negative direct effect on self-esteem ($\beta = -0.78, p < .001$) and social support had positive direct effect on self-esteem significantly ($\beta = 0.38, p < .001$). Furthermore, the factors affecting

depressive symptoms were perceived stigma ($\beta = 0.33, p < .001$), and poor maternal health status ($\beta = 0.31, p < .05$). Social support had a significantly negative direct effect on maternal depressive symptoms ($\beta = -0.25, p < .01$); while infant health status failed to predict maternal depressive symptoms. The predictor variables explained 95% of variance on the self-esteem, 54% on the maternal depressive symptoms, and 17% on the maternal role attainment

The results of this study indicated that self-esteem and social support are the key predictors of the maternal role attainment in HIV-positive mothers. In addition, perceived stigma was the social condition that affected the maternal role attainment. Maternal health status and infant health status and maternal depressive symptoms failed to predict maternal role attainment in this study. Thus, the findings derived from this model partially support the propositions of Mercer's theory. The implications for policy makers, nursing intervention and education were suggested.

Implications and Recommendations

The implications and recommendations of this study are focused on the implication for policy makers, nursing practice, nursing education, and the recommendations for further studies.

Implications for Policy Makers

The findings of this study indicated that perceived stigma and social support are important social conditions. Thus, health care policies towards HIV and AIDS should highlight the programs to eradicate stigmatization of HIV in society and enhance community support systems. Perceived stigma increases maternal depressive symptoms; decreases self-esteem; and interrupts maternal role attainment through self-esteem in HIV-positive mothers. To eradicate the HIV stigma, information campaigns and education programs through the mass media, are needed. In addition, the policies should encourage all sectors in the community including non-government organizations to co-operate in programs to eradicate stigmatization of and discrimination against people living with HIV.

The second point indicates that the PMCT program is very helpful for HIV-positive mothers and their families. This program provides comprehensive care including counseling and psychosocial support, medication, and follow-up for HIV-positive pregnant women. The appropriate self-care and antiretroviral drug treatment

will reduce maternal mortality from AIDS-related causes. Thus, it is desirable that this program be continued and that coverage be implemented in all public and private health care services. The program should also ensure fair access for all Thai HIV-positive mothers.

In addition, the prevention of mother-to-child transmission can be preventable before pregnancy. The program of voluntary premarital HIV testing could be helpful for the premarital couple to make decisions, and plans according to their situations. This program should be encouraged as a policy and promoted in national campaign.

Implications for Nursing Practice

The results in this study suggested that to enhance maternal role attainment in HIV-positive mothers, nurses should contribute to intervention programs to increase social support and self-esteem and help HIV-positive mothers decrease perceived stigma.

To enhance self-esteem, counseling intervention help these mothers view their infection in a more positive way and view themselves as those who deserve care and compassion. Positive information and feedback about their mothering helps HIV-positive mothers to perceive their own strength and use appropriate coping method.

For dealing with stigma, nurses should develop interventions that aim to help HIV positive mothers to cope appropriately with stigmatization. The counseling intervention should focus on helping these mothers in the decision-making process, reassessing risk and the benefits of a disclosure to someone that they trust, and on helping them to survive the aftermath of the disclosure. Special attention should be paid to mothers who do not reveal their HIV status to anyone because they may isolate themselves and be unable to access to social support. Health care providers including nurses and counselors are the most important ones to support them particularly as for sources of psychological support, health care information and aid in mothering their infants. Furthermore, nurses and health care providers have to be more aware of the respect for mothers' rights of privacy, and the possibility of unintended disclosure of HIV infection by their actions.

A support system is also important for HIV-positive mothers to promote self-esteem, decrease perceived stigma and attain the maternal role. Nurses should facilitate their access to information on support resources, and encouraging them to

access those resources. A guideline for networks, such as family members, and other resources, to provide quality support, and help these mothers to promote self-esteem, decrease perceived stigma and attain the maternal role is necessary. Group support should be established for HIV-positive patients. In group support, people with stigma can serve their self-esteem by comparing themselves primarily with others who are members of their own group. In addition group support including parenting classes, and child care for HIV-positive groups, provides a safe place for these mothers to talk and share unique experiences about the burden of secrecy and complications of disclosure, lessen the profound isolation and shame, and promote opportunities for social integration. However, the issues of confidentiality and shyness in meetings could be of concern in formal support group meetings. An alternative support such as group activities which could also provide an opportunity for informal support is recommended.

In addition, nurses should provide supportive educative nursing interventions in guiding them about mothering behaviors, infant growth and development, the laboratory of HIV transmission, and how to care and plan for their infants. Client teaching should be provided on the many occasions in which clients encounter health professionals, and it should be reinforced with printed and audiovisual materials when available.

Implications to Nursing Education

Educational management should incorporate the study of maternal role attainment in HIV positive mothers in specific curriculum of advanced nursing practitioners and HIV nursing specialists. This knowledge could contribute critical thinking and planning for assessment, developing interventions, and conducting research on HIV-positive mother phenomena.

Implications for Further Studies

Since the maternal role attainment is a process, that progresses from the beginning during the prenatal period and extends over 3 to 10 months of the postnatal period (Mercer, 1986b, Mercer, 1985b), a longitudinal design might be useful to illustrate the causal relationship among variables in the model. The study should start at the time of the diagnosis of pregnancy, which is the initiation of the process of maternal role attainment and be followed through the first year post partum period.

Moreover, maternal role attainment can be measured by self-rated perception and observed mothering behaviors. For further studies, the measurement of maternal role attainment should employ the triangulation method to confirm the results.

Replication studies of maternal role attainment are essential to confirm and explicate the theoretical framework. Mercer's theory proposes broad statements that maternal characteristics, infant conditions, and environmental characteristics influence maternal role attainment. The replication studies should be concerned with psychometric property of measurement as mentioned in the previous section. In addition, further study should be conducted in other groups of HIV-positive mothers such as in mothers with HIV-infected infants or in mothers who develop AIDS symptoms.

In order to confirm the validity of this model, the model proposed in this study should be tested again by modifying the measurements. Alternatively, a new model that better fits to the construct variables should be constructed and used.

The findings of this study on the psychological impact of depressive symptoms and its effect on maternal role attainment do not support the previous studies. Thus, the effect of maternal depressive symptoms on maternal role attainment remains unclear and merits for further study.

The results of this study should be confirmed by developing and testing an intervention program for promoting maternal role attainment in HIV-positive mothers, which is based on the results of this study.

Limitation of the Study

The measurement of maternal role attainment should consist of measure both subjective components and behavioral components in the construct. This study measured only subjective component that may not represent the overall construct of maternal role attainment.

The reliability of the infant's health status measure is low. This could be affected by the power of the relationship between infant's health and other variables in the tested model.

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Appendix A

Measure of Maternal Role Attainment Scale

Below are some statements concerning maternal role with which some mothers may agree and others may disagree. Please read each statement and circle the response most appropriate to you. There is no right or wrong answer.

1=strongly disagree 2=disagree 3=not sure 4=agree 5=strongly agree

1. Holding my baby is very important for me.
2. I understand any tone of my baby's voice.
3. I understand my baby's cue.
4. I can make my baby calm
5. I know when my baby wants to sleep.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.
22.
23.
24. When I come back home, the first thing I do is going directly to my baby.

แบบวัดการดำรงบทบาทมารดา

กรุณาทำเครื่องหมาย / ลงในช่องที่ตรงกับความรู้สึก หรือ การรับรู้ ของท่านมากที่สุด

1. ฉันมีความสุขที่ได้เลี้ยงลูกคนนี้ ☐ ใช่ ☐ ไม่ใช่
2. ฉันมั่นใจที่ได้เลี้ยงลูกคนนี้ ☐ ใช่ ☐ ไม่ใช่
3. ฉันมีความผูกพันกับลูกคนนี้ ☐ ใช่ ☐ ไม่ใช่
4. ฉันดูแลลูกคนนี้ได้ดี ☐ ใช่ ☐ ไม่ใช่
5. ผลการติดเชื้อ ของลูกคนนี้ ☐ รู้ผลแล้วแน่นอน ☐ รอฟังผลเลือดอีกครั้งเมื่อลูกอายุ 1 ปี หรือ 18 เดือน

ตอนที่ 2. กรุณาทำเครื่องหมาย / ลงในช่องที่ตรงกับความรู้สึก หรือ การรับรู้ การปฏิบัติ ของท่านมากที่สุด

1. การอุ้ม กอด และการใกล้ชิดกับลูกเป็นสิ่งสำคัญมากสำหรับฉัน
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
2. ฉันรู้ว่า.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
3. ฉันเข้าใจ.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
4. เมื่อลูกร้อง
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
5. ฉันรู้ว่า.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
6. ฉันรู้ว่าลูก.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
7. ฉันดูแล.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
8. ฉันรักษาความ.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
9. ฉันรู้ว่า.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
10. ฉันรู้ว่า
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
11. ฉันรู้ว่าต้องพาลูกมารับวัคซีนตามนัดในสมุดสุขภาพ
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
12. ฉันบอกได้.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ไม่แน่ใจ ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

แบบวัดการดำรงบทบาทมารดา (ต่อ)

13. ฉันตอบ.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

14. ฉัน.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

15. ฉันตอบ.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

16. ฉันมีความ.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

17. ฉันมี.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

18. ฉันรู้สึก.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

19. ลูกเป็น.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

20. ฉันรู้สึก.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

21. ฉันรู้สึก.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

22. การดูแล.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

23. ฉันคิดว่า.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

24. เมื่อกลับถึง.....

☐ไม่เห็นด้วยอย่างยิ่ง ☐ไม่เห็นด้วย ☐ไม่แน่ใจ ☐เห็นด้วย ☐เห็นด้วยอย่างยิ่ง

Appendix B

Measures of Depression

Center for Epidemiologic Studies Depression

Below is a list of some of the ways you may have felt or behaved. Please indicate how often you have felt this way during the past week by checking (/) the appropriate space

Rarely or non of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4days)	All of the time (5-7days)
---	---	---	------------------------------

1. I was bothered by things that usually don't bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family
4. I felt
5. I had
6. I felt
7. I felt
8. I felt
9. I thought.....
10. I felt
11. My
12. I was
13. I talked
14. I felt
15. People
16. I enjoyed
17. I had
18. I felt
19. I felt that people disliked me.
20. I could not get "going"

แบบสอบถาม ความรู้สึกซึมเศร้า

กรุณาทำเครื่องหมาย / ลงในช่องที่ตรงกับความรู้สึกของท่านมากที่สุดในช่วง 1 สัปดาห์ที่ผ่านมา

1. ฉันรำคาญในสิ่งที่ปกติแล้วฉันไม่เคยรำคาญมาก่อน
☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน ☐ รู้สึกน้อยครั้ง (1-2 วัน) ☐ รู้สึกบางครั้ง (3-4 วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)
2. ฉันรู้สึกเบื่ออาหาร
☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน ☐ รู้สึกน้อยครั้ง (1-2 วัน) ☐ รู้สึกบางครั้ง (3-4 วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)
3. ฉันรู้สึกว่าฉันไม่สามารถจัดการความซึมเศร้าได้ทั้งๆที่ได้รับความช่วยเหลือจากครอบครัว
☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน ☐ รู้สึกน้อยครั้ง (1-2 วัน) ☐ รู้สึกบางครั้ง (3-4 วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)
4. ฉันรู้สึก.....
☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน ☐ รู้สึกน้อยครั้ง (1-2 วัน) ☐ รู้สึกบางครั้ง (3-4 วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)
5. ฉันไม่มี.....
☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน ☐ รู้สึกน้อยครั้ง (1-2 วัน) ☐ รู้สึกบางครั้ง (3-4 วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)
6. ฉันรู้สึก.....
☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน ☐ รู้สึกน้อยครั้ง (1-2 วัน) ☐ รู้สึกบางครั้ง (3-4 วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)
7. ฉันรู้สึก.....
☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน ☐ รู้สึกน้อยครั้ง (1-2 วัน) ☐ รู้สึกบางครั้ง (3-4 วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)
8. ฉันรู้สึก.....
☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน ☐ รู้สึกน้อยครั้ง (1-2 วัน) ☐ รู้สึกบางครั้ง (3-4 วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)
9. ฉันรู้สึก.....
☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน ☐ รู้สึกน้อยครั้ง (1-2 วัน) ☐ รู้สึกบางครั้ง (3-4 วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)
10. ฉัน.....
☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน ☐ รู้สึกน้อยครั้ง (1-2 วัน) ☐ รู้สึกบางครั้ง (3-4 วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)
11. ฉัน.....
☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน ☐ รู้สึกน้อยครั้ง (1-2 วัน) ☐ รู้สึกบางครั้ง (3-4 วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)

แบบสอบถาม ความรู้สึกซึมเศร้า (ต่อ)

12. ฉันมี.....

- ☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน) ☐ รู้สึกน้อยครั้ง (1-2วัน) ☐ รู้สึกบางครั้ง (3-4วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)

13. ฉันพูด.....

- ☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน) ☐ รู้สึกน้อยครั้ง (1-2วัน) ☐ รู้สึกบางครั้ง (3-4วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)

14. ฉันรู้.....

- ☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน) ☐ รู้สึกน้อยครั้ง (1-2วัน) ☐ รู้สึกบางครั้ง (3-4วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)

15. ฉันรู้.....

- ☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน) ☐ รู้สึกน้อยครั้ง (1-2วัน) ☐ รู้สึกบางครั้ง (3-4วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)

16. ฉัน.....

- ☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน) ☐ รู้สึกน้อยครั้ง (1-2วัน) ☐ รู้สึกบางครั้ง (3-4วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)

17. ฉันเคย.....

- ☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน) ☐ รู้สึกน้อยครั้ง (1-2วัน) ☐ รู้สึกบางครั้ง (3-4วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)

18. ฉัน.....

- ☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน) ☐ รู้สึกน้อยครั้ง (1-2วัน) ☐ รู้สึกบางครั้ง (3-4วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)

19. ฉันรู้สึก.....

- ☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน) ☐ รู้สึกน้อยครั้ง (1-2วัน) ☐ รู้สึกบางครั้ง (3-4วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)

20. ฉันรู้สึกว่าคุณไม่ยอมทำอะไรต่อไปได้อีก

- ☐ ไม่เคยรู้สึก-รู้สึกน้อยกว่า 1 วัน) ☐ รู้สึกน้อยครั้ง (1-2วัน) ☐ รู้สึกบางครั้ง (3-4วัน) ☐ รู้สึกเป็นประจำ (5-7 วัน)

Appendix C

Self-esteem

Rosenberg's Self-esteem

Direction: For each statement, please circle the response on the right which best describes how you feel about yourself.

	Strongly Agree	Agree	Disagree	Strongly disagree
1. I feel that I'm a person of worth, at least on an equal basis with others.				
2. I feel that				
3. All in all, ...				
4. I am				
5. I feel				
6. I take				
7. On the				
8. I wish				
9. I certainly				
10. At times				

แบบวัดความรู้สึกมีคุณค่าในตนเอง

กรุณาทำเครื่องหมาย / ลงในช่องที่ตรงกับความรู้สึกของท่านมากที่สุด

1. ฉันรู้สึกว่าคุณค่าเท่าเทียมคนอื่น ๆ
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
2. ฉันรู้สึกว่าคุณยังมีดีอยู่หลายอย่าง
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
3. ฉันรู้สึกว่า.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
4. ฉันมีความ.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
5. ฉันรู้สึกว่า.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
6. ฉันมี.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
7. โดยรวมแล้ว.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
8. ฉันอยากจะ.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
9. ฉันรู้สึกว่า.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง
10. ฉันรู้สึก.....
☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

Appendix D

Measure Mother's Health

Self-Rated Health

In general, would you say your health in (circle one):

☐ Excellent ☐ Very good ☐ Good ☐ Fair ☐ Poor

HIV Symptom Index

Patient were asked to quantify the frequency of the following symptoms in the one month before the interview. An ordinal scale from 0 (never) to 3 (daily) was used to measure frequency. Symptoms were defined as below in the context of the interview. At the patient's request, Standard examples of symptoms were provided to clarify the meaning of the symptom

Symptom	Definition
Fatigue	Fatigue, or loss of energy, that keeps you from doing the things you need and like to do
Fever	
Imbalance	Loss of
Paresthesias	Pain, ...
Memory loss	Trouble
Nausea	Upset
Diarrhea	Three or
Sadness	Feeling
Sleep disturbance	Difficulty
Skin Problems	Problems
Cough	Cough of any type, productive or non-productive.
Headache	Headache of any type or severity.

แบบวัดภาวะสุขภาพของมารดา

1. แบบวัดการรับรู้ภาวะสุขภาพของมารดา

กรุณาทำเครื่องหมาย / ลงในช่องที่ตรงกับความรู้สึก หรือ การรับรู้ของท่านมากที่สุด

โดยทั่วไป ท่านคิดว่าภาวะสุขภาพท่านอยู่ในระดับใด

☐ ดีมากที่สุด ☐ ดีมาก ☐ ดี ☐ พอใช้ ☐ ไม่ดี

2. แบบสอบถามอาการของมารดา

ในช่วงเวลา 1 เดือน ที่ผ่านมา ท่านมีอาการต่อไปนี้หรือไม่, ถ้ามีอาการดังกล่าว มีมากน้อยเพียงใด

1. อ่อนเพลีย (ไม่มีแรง ที่จะทำสิ่งต่างๆได้ตามต้องการ)

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

2. มีไข้ (รู้สึกว่ามีไข้ โดยไม่ต้องวัดด้วยปรอท)

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

3. การทรงตัวไม่ดี

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

4. แขน ขา

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

5. ลิ้นบวม

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

6. คลื่นไส้

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

7. ท้องเสีย

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

8.

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

9.

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

10.

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

11.

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

12. ปวดศีรษะ (ปวดศีรษะทุกแบบ หรือ ทุกระดับความรุนแรง)

☐ ไม่มีอาการแสดง ☐ มีอาการ 1 ถึง 3 วัน ต่อสัปดาห์ ☐ มีอาการ 4 ถึง 6 วัน ต่อสัปดาห์ ☐ มีอาการทุกวัน

Appendix E

Infant Health

Patients were asked to quantify the frequency of the following symptoms in the three months before the interview. An ordinal scale from 0 (never) to 2 (every month) was used to measure frequency. Symptoms were defined as below in the context of the interview.

1. Fever
2. Diarrhea
3. Common Cold
4. Pneumonia
5. Pharyngitis
6. Trush
7. Otitis Media
8. Skin Rash

แบบวัดภาวะสุขภาพทารก

กรุณาทำเครื่องหมาย / ในช่อง ที่ตรงกับกรับรู้ของท่านมากที่สุด

ในช่วง 3 เดือนที่ผ่านมา ลูกของท่าน เคยเจ็บป่วย หรือ มีอาการ ต่อไปนี้หรือไม่

1. มีไข้ รุนแรง

- ☐ ไม่เคยป่วย ☐ ป่วยนานๆ ครั้ง (2-3 เดือนเป็นครั้ง) ☐ ป่วยบ่อย (เป็นทุกเดือน)

2. อุจจาระร่วง (ถ่ายเหลวตั้งแต่ 3 ครั้งขึ้นไป ต่อวัน)

- ☐ ไม่เคยป่วย ☐ ป่วยนานๆ ครั้ง (2-3 เดือนเป็นครั้ง) ☐ ป่วยบ่อย (เป็นทุกเดือน)

3. ไข้หวัด

- ☐ ไม่เคยป่วย ☐ ป่วยนานๆ ครั้ง (2-3 เดือนเป็นครั้ง) ☐ ป่วยบ่อย (เป็นทุกเดือน)

4. ปวดบวม

- ☐ ไม่เคยป่วย ☐ ป่วยนานๆ ครั้ง (2-3 เดือนเป็นครั้ง) ☐ ป่วยบ่อย (เป็นทุกเดือน)

5. คออักเสบ

- ☐ ไม่เคยป่วย ☐ ป่วยนานๆ ครั้ง (2-3 เดือนเป็นครั้ง) ☐ ป่วยบ่อย (เป็นทุกเดือน)

6. เป็นเชื้อรา หรือ ฝ้าในปาก

- ☐ ไม่เคยป่วย ☐ ป่วยนานๆ ครั้ง (2-3 เดือนเป็นครั้ง) ☐ ป่วยบ่อย (เป็นทุกเดือน)

7. หูน้ำหนวก

- ☐ ไม่เคยป่วย ☐ ป่วยนานๆ ครั้ง (2-3 เดือนเป็นครั้ง) ☐ ป่วยบ่อย (เป็นทุกเดือน)

8. มีผื่น หรือตุ่มหนองที่ผิวหนัง

- ☐ ไม่เคยป่วย ☐ ป่วยนานๆ ครั้ง (2-3 เดือนเป็นครั้ง) ☐ ป่วยบ่อย (เป็นทุกเดือน)

9. อื่นๆ ระบุ.....

Appendix F

Measure Social Support

Personal Resource Questionnaire 85 part II

Below are some statements with which some people agree and others disagree. Please read each statement and circle the response most appropriate for you. There is not right or wrong answer.

1 = strongly disagree 2 = disagree 3 = somewhat disagree
4 = neutral 5 = somewhat agree 6 = agree 7 = strongly agree

1. There is someone I feel close to who makes me feel secure.
2. I belong to a group I which I feel important.
3. People let me know that I do well at my work (job, homemaking.
4. I can't count on my relatives and friends to help me with my problems.
5. I have enough contact with the person who makes me feel special.
6. I spend
7. There is
8. Others
9. There
10. There
11. Among
12. I have
13. My family
14. I have
15. When I am
16. I feel
17. I enjoy doing
18. I know
19. There
20. I have
21. I am
22. If I need
23. I have a
24. People
25. If I got

แบบวัดการสนับสนุนทางสังคม

กรุณาทำเครื่องหมาย / ลงในช่องที่ตรงกับการรับรู้ของท่านมากที่สุด

1. ฉันมีคนที่ยังรู้จักใกล้ชิดสนิทสนมซึ่งทำให้ฉันรู้สึกอบอุ่นปลอดภัย

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

2. ฉันมีกลุ่มเพื่อนหรือ เพื่อนบ้านซึ่งทำให้ฉันรู้สึกว่ามีค่าในกลุ่ม

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

3. คนรอบข้าง หรือเพื่อนร่วมงานบอกหรือ แสดงให้รู้ว่าฉันทำงานได้ดี (งานบ้าน หรืองานที่ทำงาน)

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

4. ฉันไม่สามารถพึ่งพาญาติ และเพื่อนได้ เมื่อฉันมีปัญหา

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

5. ฉันรู้สึกว่ามีค่า.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

6. ฉันใช้เวลาพูดคุย.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

7. ฉันไม่ค่อย.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

8. คนรอบข้างหรือ.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

9. ถ้าฉันต้องการ.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

10. ฉันไม่รู้จะระบาย.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

11. ฉัน และ เพื่อน.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

12. ฉันมีส่วนช่วย.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

แบบวัดการสนับสนุนทางสังคม (ต่อ)

13. ครอบครัวของ.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

14. ฉันมีญาติ หรือ

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

15. เมื่อฉันรู้สึก.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

16. ฉันรู้สึกว่.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

17. ฉันรู้สึกมีความสุข.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

18. ฉันรู้สึกว่.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

19. ฉันมีคนที.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

20. ฉันมีเพื่อนที.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

21. ฉันมีความรับ.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

22. ถ้าฉันต้องการ.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

23. ฉันรู้สึกว่ฉัน.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

24. มีคนเคยบอก หรือ.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

25. ถ้าฉันป่วย มีคนที่.....

☐ ไม่เห็นด้วยอย่างยิ่ง ☐ ไม่เห็นด้วย ☐ ค่อนข้างไม่เห็นด้วย ☐ เฉยๆ ☐ ค่อนข้างเห็นด้วย ☐ เห็นด้วย ☐ เห็นด้วยอย่างยิ่ง

Appendix G

Stigma

Demi's HIV Stigma Scale

People have different thoughts and feelings about their HIV-infections
How often have you had these thoughts and feelings during the past 6 months
including today?

1 = not at all

2 = Rarely

3= sometimes

4= often

1. I felt blamed by others for my illness.
2. I felt ashamed of my illness.
3. I thought my illness was a punishment for things I've done in the past.
4. I felt
5. I avoided
6. I feared
7. I thought
8. I felt
9. I feared
10. I feared
11. I felt I
12. People

แบบวัดการรับรู้ตราใบ

กรุณาทำเครื่องหมาย / ลงในช่องที่ตรงกับความรู้สึกของท่านมากที่สุด ในช่วง 6 เดือนที่ผ่านมา

1. ฉันถูกคนอื่นตำหนิเพราะการเจ็บป่วยของฉัน
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ
2. ฉันรู้สึกอายเกี่ยวกับการเจ็บป่วยของฉัน
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ
3. ฉันคิดว่าการเจ็บป่วยของฉันเป็นการถูกละทิ้งจากสิ่งที่ฉันทำในอดีต
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ
4. ฉันรู้สึกถูกบีบคั้นให้ย้ายที่อยู่เพราะการเจ็บป่วยของฉัน
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ
5. ฉันเลิ่ขการ.....
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ
6. ฉันกลัวว่าคน.....
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ
7. ฉันคิดว่า.....
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ
8. ฉันรู้สึกว่าคุณ.....
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ
9. ฉันกลัวว่า.....
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ
10. ฉันกลัวว่า.....
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ
11. ฉันรู้สึกว่าคุณ.....
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ
12. คนอื่นที่รู้.....
☐ ไม่เคยเลย ☐ น้อยครั้ง ☐ เป็นบางครั้ง ☐ เป็นประจำ

Appendix H

Demographic and Background Information Questionnaire

กรุณาเขียนข้อมูล และ ทำเครื่องหมาย / ลงในช่องที่ตรงกับข้อมูลของท่านมากที่สุด

1. ข้อมูลส่วนตัวท่าน

- 1.1 อายุ.....ปี 1.2 ศาสนา ☐ พุทธ ☐ คริสต์ ☐ อิสลาม ☐ อื่น ระบุ
- 1.3 สถานภาพสมรส ☐ คู่ ☐ หม้าย ☐ หย่า/ แยก
- 1.4 การศึกษา ☐ ไม่ได้ศึกษา ☐ ประถมศึกษา ☐ มัธยมศึกษา
☐ อนุปริญญา ☐ อาชีวศึกษา ☐ ปริญญาตรี ☐ สูงกว่าปริญญาตรี
- 1.5 รายได้ครอบครัว ☐ ต่ำกว่า 1,000 บาท ☐ 1,001- 5,000 บาท
☐ 5001- 10,000 บาท ☐ 10,001- 20,000 บาท ☐ มากกว่า 20,000 บาท
- 1.6 ท่านทราบผลเลือดเมื่อ ☐ ก่อนการตั้งครรภ์ ☐ เมื่อมาฝากครรภ์ ☐ หลังคลอด
- 1.7 การฝากครรภ์ ☐ ได้รับการฝากครรภ์ ☐ ไม่ได้รับการฝากครรภ์
- 1.8 การคลอด ☐ คลอดปกติ ☐ ใช้เครื่องดูดช่วยขณะคลอด
☐ ใช้เข็ม ช่วยคลอด ☐ ผ่าตัดคลอด
- 1.9 การได้รับยาต้านไวรัส ☐ ไม่ได้รับยา
☐ ได้รับยา ระยะเวลาที่ได้รับยา (ตอบได้มากกว่า 1 ข้อ)
☐ ได้รับขณะตั้งครรภ์ ☐ ได้รับ หลัง คลอด ☐ ได้รับในขณะนี้
- 1.11 จำนวนบุตรในความดูแล.....คน
- 1.12 สมาชิกในครอบครัวที่ทราบการเจ็บป่วยของท่านมีจำนวน.....คน คือ

2. ข้อมูลเกี่ยวกับบุตรคนนี้ของท่าน

- 2.1 วันเดือนปีเกิด..... 2.2. เป็นบุตรคนที่..... 2.3 เพศ ☐ ชาย ☐ หญิง
- 2.4 ภาวะแทรกซ้อนเมื่อแรกเกิด ☐ ไม่มี ☐ มี ระบุ.....
- 2.5 ได้รับการตรวจเลือดครั้งสุดท้ายเมื่อ ผลการตรวจ
- 2.6 การได้รับยาของบุตร
- ยาต้านไวรัส ☐ ได้รับหลังเกิด ☐ ไม่ได้รับหลังเกิด
- ยาน้ำป้องกันโรคปอด ☐ ได้รับ ☐ ไม่ได้รับ
- 2.7 บุตรของท่านมีภาวะดังต่อไปนี้ หรือ ไม่
- 2.7.1 ป่วยรุนแรงจนต้องนอนพักรักษาในโรงพยาบาล
☐ ไม่เคย ☐ ไม่เคย ระบุสาเหตุที่ต้องนอนรับการรักษาที่โรงพยาบาล.....
- 2.7.2 การเจริญเติบโตช้า ☐ ไม่มี ☐ มี
- 2.7.3 พัฒนาการช้าเมื่อเทียบกับเด็กวัยเดียวกัน ☐ ไม่มี ☐ มี

Appendix I

Descriptive Statistics of Variables

Table 4.9 Descriptive Statistics of Study Variable Items

Items	Mean	SD	Skewness	Kurtosis
Stigma				
1. I felt blamed by others for my illness.	1.57	0.86	1.18	0.00
2. I felt ashamed of my illness.	2.29	1.03	0.09	-1.23
3. I thought my illness was a punishment for things I've done in the past.	2.54	1.09	-0.22	-1.26
4. I felt compelled to change my residence because of my illness.	1.35	0.73	1.88	2.18
5. I avoided getting treatment because someone might find out about my illness.	1.66	0.97	1.07	-0.34
6. I feared that people would hurt my family if they learned about my illness.	2.40	1.10	-0.12	-1.40
7. I thought other people were uncomfortable being with me	2.13	1.03	0.22	-1.31
8. I felt people avoid me because of my illness.	1.71	0.92	0.80	-0.86
9. I feared I would lose my friends if they learned about my illness.	2.62	1.06	-0.31	-1.12
10. I feared my family would reject me if they learned about my illness	2.48	1.19	-0.12	-1.52
11. I felt I wouldn't get as good health care if people knew about my illness.	2.33	1.07	0.02	-1.34
12. People who know I am HIV+ve treat me with kid gloves.	2.30	1.19	0.20	-1.50
Score higher than mean = 45.6%				
Self-rated health status				
In general, would you say your health is.....	3.30	0.72	-.21	.47
Maternal Symptoms				
1. Fatigue	0.40	0.60	1.52	2.84
2. Fever	0.29	0.59	2.22	5.11
3. Imbalance	0.22	0.53	2.88	9.22
4. Paresthesias	0.51	0.77	1.70	2.79
5. Memory loss	0.58	0.78	1.38	1.59
6. Nausea	0.30	0.60	2.39	6.47
7. Diarrhea	0.16	0.45	3.06	10.51
8. Sadness	0.48	0.72	1.67	2.78
9. Sleep	0.64	0.87	1.43	1.42
10. Skin Problems	0.44	0.79	1.94	3.18
11. Cough	0.43	0.68	1.74	3.09
12. Headach	0.61	0.73	1.23	1.62
Infant Health Status				
1. Fever	0.53	0.58	0.57	-0.62
2. Diarrhea	0.34	0.53	1.28	0.66
3. Common Cold	0.73	0.54	-0.10	-0.46
4. Pneumonia	0.03	0.18	5.15	24.75
5. Pharynxgitis	0.31	0.49	1.21	0.31
6. Thrush	0.23	0.49	2.06	3.53
7. Otitis Media	0.02	0.15	6.43	39.63
8. Skin Rash	0.17	0.41	2.21	4.18

Table 4.9 Descriptive Statistics of Study Variable (Con)

Items	Mean	SD	Skewness	Kurtosis
Social Support				
1. There is someone I feel close to who makes me feel secure.	5.55	1.17	-1.08	1.50
2. I belong to a group I which I feel important.	5.24	1.23	-1.02	1.17
3. People let me know that I do well at my work (job, homemaking.	5.44	1.12	-0.84	0.84
4. I can't count on my relatives and friends to help me with my problems.	4.40	1.93	-0.23	-1.30
5. I have enough contact with the person who makes me feel special.	5.36	1.29	-0.89	0.45
6. I spend time with others who have the same interests I do.	5.22	1.21	-1.03	0.92
7. There is little opportunity in my life to be giving and caring to another person.	4.93	1.64	-0.63	-0.75
8. Others let me know that they enjoy working with me (job, committees, and projects).	5.24	1.11	-0.60	-0.11
9. There are people who are available if I needed help over an extended period of time.	5.08	1.43	-1.03	0.53
10. There is no one to talk to about how I am feeling.	3.87	1.86	0.15	-1.21
11. Among my group of friends we do favors for each other.	5.26	1.26	-1.08	0.73
12. I have the opportunity to encourage others to develop their interests and skills.	5.30	1.18	-1.00	1.15
13. My family lets me know that I am important for keeping the family running.	5.61	1.19	-1.31	2.00
14. I have relatives or friends that will help me out even if I can't pay them back.	5.36	1.37	-1.34	1.35
15. When I am upset there is someone I can be with who lets me be my self.	5.71	1.10	-1.33	2.24
16. I feel no one has the same problems as I.	4.08	1.84	-0.04	-1.18
17. I enjoy doing little "extra" things that make another person's life more pleasant.	5.71	0.94	-1.16	2.48
18. I know that others appreciate me as a person.	4.90	1.27	-0.32	-0.30
19. There is someone who loves and cares about me.	5.88	1.02	-1.11	1.34
20. I have people to share social events and fun activities with.	5.43	1.21	-0.98	0.74
21. I am responsible for helping provide for another person's needs.	5.51	1.04	-1.36	3.10
22. If I need advice there is someone who would assist me to work out a plan for dealing the situation.	5.69	1.06	-1.38	2.70
23. I have a sense of being needed by another person.	5.30	1.25	-0.99	1.06
24. People think that I'm not as good a friend as I should be.	4.78	1.54	-0.47	-0.54
25. If I got sick, there is someone to give me advice about caring for myself.	5.73	1.06	-1.39	2.73
Self-esteem				
1. I feel that I'm a person of worth, at least on an equal basis with others	3.23	0.59	-0.21	0.16
2. I feel that I have a number of good qualities	3.14	0.59	-0.49	1.79
3. All in all, I am inclined to feel that I am a failure.	3.12	0.69	-0.37	-0.14
4. I am able to do things as well as most other people	3.26	0.56	-0.27	1.02
5. I feel I do not have much to be proud of.	3.00	0.69	-0.21	-0.28
6. I take a positive attitude toward myself.	3.23	0.56	-0.12	0.39
7. On the whole, I am satisfied with myself.	3.14	0.61	-0.28	0.49
8. I wish I could have more respect for myself.	2.05	0.63	0.53	1.23
9. I certainly feel useless at times	3.11	0.70	-0.63	0.74
10. At times I think I am no good at all.	3.18	0.66	-0.54	0.64

Table 4.9 Descriptive Statistics of Study Variable (Con)

Items	Mean	SD	Skewness	Kurtosis
Depression				
1. I was bothered by things that usually don't bother me.	0.94	0.90	0.55	-0.68
2. I did not feel like eating; my appetite was poor.	0.74	0.85	0.79	-0.45
3. I felt that I could not shake off the blues even with help from my family	0.83	0.95	0.84	-0.40
4. I felt that I was just as good as other people.	1.04	1.03	0.67	-0.69
5. I had trouble keeping my mind on what I was doing.	0.93	0.98	0.71	-0.62
6. I felt depressed.	0.79	0.92	0.88	-0.29
7. I felt that everything I did was an effort.	1.44	1.10	0.11	-1.29
8. I felt hopeful about the future.	0.79	0.92	0.96	-0.05
9. I thought my life had been a failure	0.96	1.00	0.66	-0.74
10. I felt fearful.	1.00	1.02	0.57	-0.92
11. My sleep was restless.	0.84	0.92	0.77	-0.45
12. I was happy.	0.72	0.88	1.08	0.31
13. I talked less than usual.	0.74	0.91	1.00	-0.01
14. I felt lonely.	0.71	0.97	1.08	-0.12
15. People were unfriendly	0.48	0.78	1.51	1.32
16. I enjoyed life.	1.12	1.11	0.51	-1.11
17. I had crying spells.	0.87	0.95	0.66	-0.75
18. I felt sad.	0.88	0.94	0.84	-0.24
19. I felt that people disliked me.	0.59	0.80	1.01	-0.22
20. I could not get "going"	0.55	0.85	1.36	0.75
Maternal Role Attainment				
1. Holding my baby is very important for me.	4.60	0.58	-1.59	4.79
2. I understand any tone of my baby's voice.	4.18	0.74	-0.58	0.27
3. I understand my baby's cue.	4.24	0.62	-0.21	-0.59
4. I can make my baby calm	4.28	0.65	-0.44	-0.32
5. I know when my baby wants to sleep.	4.34	0.60	-0.40	-0.03
6. I know what my baby needs or feels	4.13	0.68	-0.16	-0.81
7. I give my baby enough sleep (at least 12-14 hours a day)	4.20	0.78	-0.85	0.99
8. I am good at taking care of my baby's hygiene (bathing 2 times a day, shampoo at least 3 times a week)	4.48	0.63	-1.09	1.42
9. I know how to dress my baby appropriately.	4.47	0.59	-0.73	0.18
10. I know my baby has to see a doctor on schedule.	4.70	0.48	-1.20	0.17
11. I know my baby has to get a series of vaccinations	4.73	0.45	-1.19	-0.24
12. I know what is dangerous to my baby (for example: contact with blood, being close to people with a cold)	4.53	0.66	-1.66	4.12
13. I respond to my baby's needs appropriately (for example: providing toys appropriate to the baby's age).	4.16	0.65	-0.17	-0.68
14. I am good at soothing my baby.	4.26	0.59	-0.26	0.06
15. I respond to my baby's needs immediately (for example: feeding my 17. baby when he or she is hungry).	4.36	0.68	-0.67	-0.34
16. I am happy to take care of my baby.	4.63	0.54	-1.06	0.09
17. I am happy to feed my baby.	4.47	0.75	-1.85	4.88
18. I feel satisfied taking responsibility for my baby.	4.47	0.58	-0.80	0.93
19. My baby is the reward of my life.	4.76	0.43	-1.25	-0.44
20. I am happy to look after my baby's growth and development.	4.69	0.47	-0.95	-0.81
21. feel so proud when my baby is appreciated.	4.65	0.52	-1.05	-0.04
22. Taking care of my baby is my first priority.	4.37	0.65	-0.97	1.60
23. I think that I can do everything for my baby.	4.58	0.59	-1.05	0.11
24. When I come back home, the first thing I do is going directly to my baby.	4.65	0.54	-1.36	1.78

Appendix J

Table 4.10 Assessment of Multicollinearity Testing among Predicting Variables

Variable		Tolerance		Variance inflation factor (VIF)														
Stigma (STIG)		.707		1.415														
Self-rated perceived health status (SRH)		.787		1.271														
Maternal Symptoms (MSYM)		.586		1.708														
Infant symptoms (ISYM)		.789		1.268														
Intimacy (INTE)		.378		2.646														
Social integration (SOC)		.475		2.105														
Nurturance (NUR)		.449		2.227														
Worth (WORT)		.389		2.569														
Available support (ASSI)		.461		2.168														
Self-esteem (SE)		.508		1.970														
Depressed Affect (DEPM)		.345		2.902														
Positive Affect (POSTM)		.771		1.297														
Somatic& retarded (SOM)		.386		2.593														
Interpersonal relationship (INTER)		.625		1.601														
Model Dimention		Eigenvalue		Condition Index		Variance Proportion												
		Constant		STIG	SRH	MSYM	ISYM	INTE	SOC	NUR	WORT	ASSI	SE	DEPM				
POSTM	SOM	INTER	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				
1	12.519	1.000	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				
2	.974	3.584	.00	.00	.02	.01	.00	.00	.00	.00	.00	.03	.00	.01				
3	.412	5.512	.00	.00	.11	.25	.00	.00	.00	.00	.00	.00	.09	.00				
4	.341	6.056	.00	.00	.10	.01	.00	.00	.00	.00	.00	.00	.60	.02				
5	.277	6.720	.00	.00	.00	.33	.00	.00	.00	.00	.00	.14	.04	.05				
6	.225	7.456	.00	.00	.56	.37	.00	.00	.00	.00	.00	.09	.01	.02				
7	.087	11.993	.00	.15	.00	.00	.00	.00	.00	.00	.00	.37	.09	.70				
8	.065	13.904	.00	.56	.02	.08	.01	.00	.00	.00	.01	.30	.00	.16				
9	.044	16.787	.00	.12	.66	.06	.00	.00	.00	.00	.00	.01	.03	.01				
10	.013	30.584	.00	.02	.00	.00	.00	.13	.01	.15	.16	.34	.01	.01				
11	.012	32.159	.04	.05	.04	.01	.01	.00	.07	.08	.09	.15	.27	.02				
12	.011	33.344	.01	.02	.03	.00	.01	.00	.85	.01	.02	.02	.11	.00				
13	.008	38.894	.01	.00	.02	.01	.00	.60	.04	.11	.16	.31	.01	.01				
14	.006	45.161	.01	.00	.01	.02	.00	.26	.01	.62	.56	.11	.00	.00				
15	.003	62.734	.92	.08	.22	.02	.00	.00	.01	.02	.00	.60	.02	.07				

Appendix K

The Measurement Models of the Study Variables

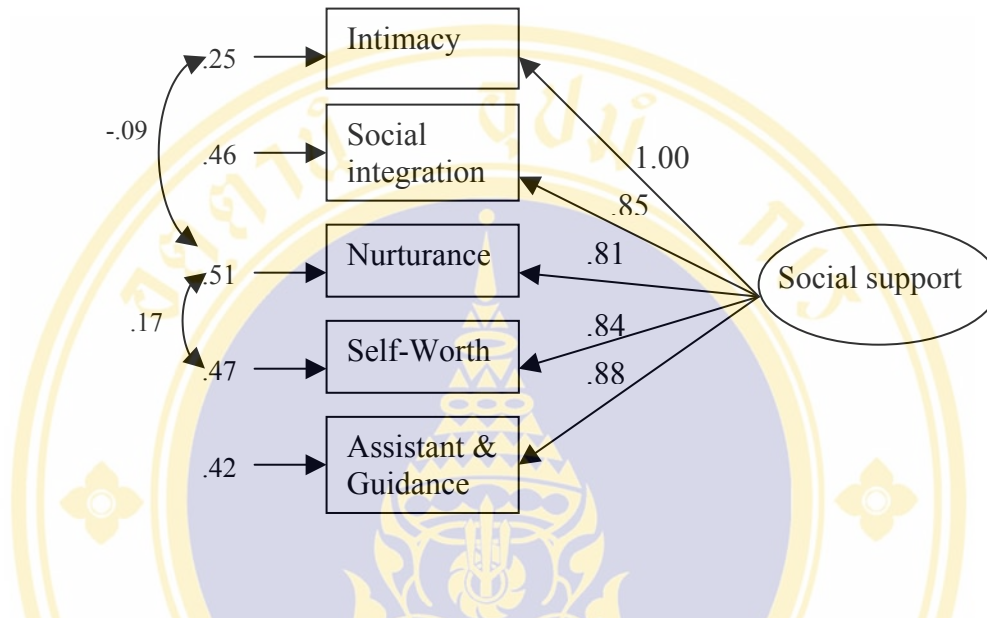


Figure 5 Model Confirmatory Factor Analysis of Social Support Scale

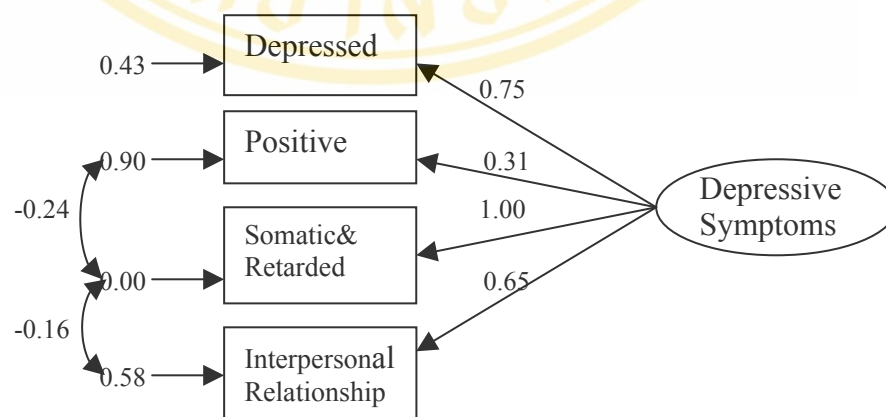


Figure 6 Model Confirmatory Factor Analysis of Depressive Symptom Scale

The Measurement Models of the Study Variables

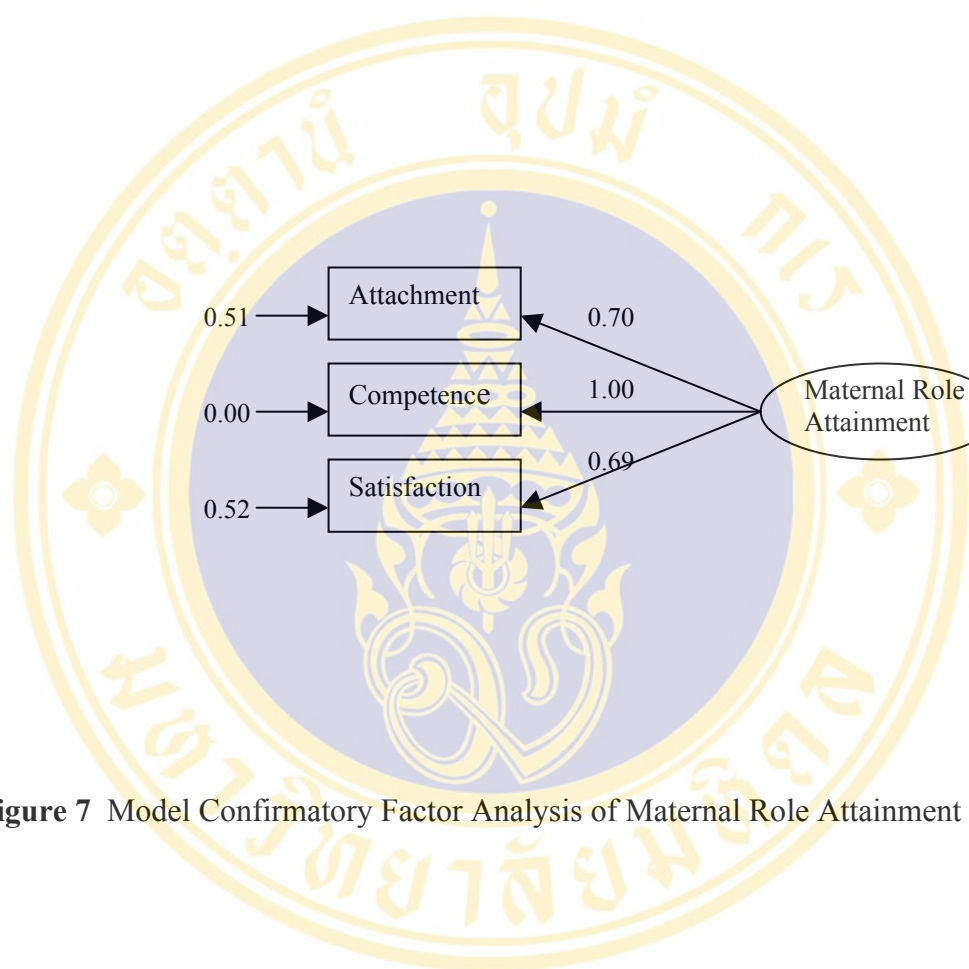


Figure 7 Model Confirmatory Factor Analysis of Maternal Role Attainment Scale

Appendix L

Table 4.11 Path coefficients of the Hypothesized Structural Equation Model of Maternal Role Attainment

Parameter	Path Coefficients	Standard Errors	T-values
LAMDA-Y			
Self-esteem → Self-esteem	1.00		
Depression → Depressed Affect	1.00 (#0.90)		
Depression → Positive Affect	0.16*** (#0.26)	0.04	4.01
Depression → Somatic and Retard Activity	0.71*** (#0.81)	0.05	14.48
Depression → Interpersonal Relationship	0.18*** (#0.59)	0.02	9.96
Maternal Role Attainment → Attachment	0.53*** (#0.71)	0.05	11.92
Maternal Role Attainment → Competency	1.00 (#0.94)		
Maternal Role Attainment → Satisfaction	0.73*** (#0.74)	0.06	12.49
LAMDA-X			
Stigma → Perceived stigma	1.00		
Maternal Health → Self-rated Health Status	0.08*** (#0.44)	0.02	4.93
Maternal Health → Maternal Symptoms	1.00 (#0.84)		
Infant Health → Infant Symptoms	1.00		
Social Support → Intimacy	1.00 (#0.82)		
Social Support → Social Integration	0.91*** (#0.76)	0.07	13.23
Social Support → Nurturance	0.77*** (#0.71)	0.06	12.13
Social Support → Worth	0.92*** (#0.79)	0.07	13.86
Social Support → Available support	0.89*** (#0.73)	0.07	12.67
GAMMA			
Stigma → Self-Esteem	-0.06* (#-.13)	0.03	-2.40
Stigma → Depression	0.15*** (#0.26)	0.04	4.07
Maternal Health → Depression	0.43** (#0.35)	0.14	3.01
Maternal Health → Maternal Role Attainment	-0.08 (#-0.08)	0.10	-0.84
Infant Health → Depression	0.20 (#0.08)	0.17	1.20
Infant Health → Maternal Role Attainment	-0.15 (#-0.08)	0.13	-1.17
Social Support → Self-esteem	0.62*** (#0.59)	0.07	9.66
Social Support → Depression	-0.33*** (#-.25)	0.09	-3.83
Social Support → Maternal Role Attainment	0.17 (#0.17)	0.09	1.83
BETA			
Self-esteem → Maternal Role Attainment	0.34*** (#0.36)	0.08	4.50
Depression → Maternal Role Attainment	0.21** (#0.27)	0.07	2.94

Note: *P-value < .05, **P-value < .01, *** P-value < .001

Appendix M

Table 4.12 Path coefficients of the Modified Structural Equation Maternal Role

Attainment

Parameter	Path Coefficients	Standard Errors	T-values
<u>LAMDA-Y</u>			
Self-esteem → Self-esteem	1.00		
Depression → Depressed Affect	1.00 ^{***} (#0.81)		
Depression → Positive Affect	0.21 ^{***} (#0.31)	0.05	4.42
Depression → Somatic and Retard Activity	0.71 ^{***} (#0.73)	0.05	13.57
Depression → Interpersonal Relationship	0.21 ^{***} (#0.65)	0.02	9.48
Maternal Role Attainment → Attachment	0.52 ^{***} (#0.69)	0.05	11.40
Maternal Role Attainment → Competency	1.00 ^{***} (#0.95)		
Maternal Role Attainment → Satisfaction	0.70 ^{***} (#0.71)	0.06	11.92
<u>LAMDA-X</u>			
Stigma → Perceived stigma	1.00		
Maternal Health → Self-rated Health Status	0.10 ^{***} (#0.46)	0.02	5.54
Maternal Health → Maternal Symptoms	1.00	0.35	10.05
Infant Health → Infant Symptoms	1.00		
Social Support → Intimacy	1.00 ^{***} (#0.81)		
Social Support → Social Integration	0.94 ^{***} (#0.78)	0.08	12.64
Social Support → Nurturance	0.77 ^{***} (#0.70)	0.08	10.32
Social Support → Worth	0.90 ^{***} (#0.76)	0.07	12.23
Social Support → Available support	0.83 ^{***} (#0.68)	0.06	13.03
<u>GAMMA</u>			
Stigma → Self-Esteem	-0.37 ^{***} (#-.78)	0.07	-5.67
Stigma → Depression	0.18 ^{***} (#0.33)	0.03	5.11
Maternal Health → Depression	0.37 [*] (#0.31)	0.15	2.49
Maternal Health → Maternal Role Attainment	-0.003 [*] (#-.003)	0.12	-0.03
Infant Health → Depression	0.26 [*] (#0.12)	0.16	1.58
Infant Health → Maternal Role	-0.24 [*] (#-0.13)	0.14	-1.72
Attainment			
Social Support → Self-esteem	0.41 ^{***} (#0.38)	0.09	4.73
Social Support → Depression	-0.29 ^{**} (#-0.25)	0.09	-3.26
Social Support → Maternal Role	0.22 [*] (#0.22)	0.09	2.46
Attainment			
<u>BETA</u>			
Self-esteem → Maternal Role Attainment	0.30 ^{***} (#0.32)	0.08	3.72
Depression → Maternal Role Attainment	0.18 [*] (#0.21)	0.10	1.88

Note: *P-value < .05, **P-value < .01, *** P-value < .001

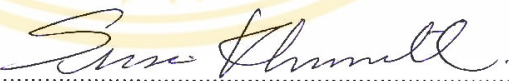
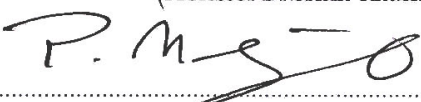
Appendix N

List of Experts

1. Prof. Dr. Veena Jirapaet
Nursing faculty, Chulalongkorn University
2. Col.Dr. Angoon Kertpanit
Department of Pediathric, Phramongkutklao Hospital
3. Lect. Dr. Penpaktr Uthis
Nursing faculty, Chulalongkorn University
4. Asst. Prof. Dr. Areewan Oumtanee
Nursing faculty, Chulalongkorn University
5. Lect. Dr. Wanlaya Thampanichawat
Nursing faculty, Mahidol University
6. Asst. Prof. Dr. Pikul Nunthachaipan
Nursing faculty, Chiangmai University
7. Assoc. Prof. Dr. Susanha Yimyam
Nursing faculty, Chiangmai University
8. Col. Dr. Sataporn Thitiwicheanlerd
Department of Medicine, Phramongkutklao hospital
9. Col Dr. Pongsthorn Natrakom
Department of Psychiatric, Phramongkutklao Hospital

Appendix O

Human Subject Approval

	
No. <u>9/2005</u>	
Documentary Proof of Ethical Clearance The Committee on Human Rights Related to Human Experimentation Mahidol University, Bangkok	
Title of Project.	A Structural Model Development of Mercer's Maternal Role Attainment in Thai, HIV-Seropositive Mothers (Thesis for Ph.D.)
Principle Investigator.	Major. Pennapa Pakdewong
Name of Institution.	Faculty of Nursing
Approved by the Committee on Human Rights Related to Human Experimentation	
Signature of Chairman.	 (Professor Dr. Srisin Khusmith)
Signature of Head of the Institute.	 (Professor Dr. Pornchai Matangkasombut)
Date of Approval.	21 JAN 2005

Appendix P

หนังสือชี้แจงเกี่ยวกับการเข้าร่วมวิจัย

การพัฒนาโมเดลความสำเร็จการดำรงบทบาทมารดา ของ ทฤษฎีเมอเซอร์ ในมารดาไทย ที่ติดเชื้อ

ท่านได้รับเชิญเข้าร่วมโครงการวิจัย เพื่อ ศึกษาการดำรงบทบาทมารดาของมารดาที่มีบุตรในช่วงขวบปีแรก ผู้รับผิดชอบโครงการวิจัย คือ พันตรีหญิง เพ็ญภา ภัคดีวงศ์ นักศึกษาระดับปริญญาเอกสาขาปรัชญาทางการพยาบาล มหาวิทยาลัยมหิดล หากท่านยินดีเข้าร่วมการวิจัยท่านจะได้รับแบบสอบถามเกี่ยวกับการรับรู้การดำรงบทบาทมารดา, อาการซึมเศร้า, ความรู้สึกมีคุณค่าในตนเอง, สุขภาพของมารดา, สุขภาพของบุตร, การรับรู้การสนับสนุนทางสังคม, การรับรู้ตราใบ และ ข้อมูลส่วนบุคคล การตอบแบบสอบถามใช้ระยะเวลาประมาณ 30 นาที ข้อมูลที่ได้นี้จะประโยชน์อย่างยิ่งต่อบุคลากรที่เกี่ยวข้องในการนำไปประกอบการวางแผนการจัดบริการสนับสนุนช่วยเหลือมารดาที่ติดเชื้อที่มีประสิทธิภาพต่อไป

ข้อมูลที่ได้รับจากการวิจัยครั้งนี้จะถูกเก็บเป็นความลับ และ จะนำเสนอข้อมูลเป็นรายกลุ่ม โดยไม่มีการเปิดเผยชื่อของท่านให้ผู้อื่นทราบ ท่านสามารถปฏิเสธ หรือขอถอนตัวจากการเข้าร่วมการวิจัยได้ตลอดเวลา โดยไม่มีผลกระทบใดๆต่อการมารับบริการของท่าน และ บุตรของท่าน หากท่านรู้สึกไม่สบายใจจากการตอบแบบสอบถาม หรือ มีข้อสงสัยเกี่ยวกับการวิจัย ผู้วิจัยยินดีตอบคำถาม หรือพูดคุยกับท่านได้ โดยท่านสามารถติดต่อผู้วิจัยได้ทางหมายเลข 01-4439230 ท่านจะได้รับสำเนาการเข้าร่วมโครงการวิจัย 1 ฉบับ ท่านจะไม่สูญเสียสิทธิทางกฎหมายใดๆ ทั้งสิ้นหากท่านยินดี และ เซ็นชื่อยินยอมเข้าร่วมการวิจัย ท่านจะได้รับของที่ระลึก จากการตอบแบบสอบถามครั้งนี้

การเซ็นชื่อของท่านข้างล่างนี้แสดงว่าท่านยินดีเข้าร่วมโครงการวิจัย และท้ายที่สุดผู้วิจัยขอขอบคุณที่ท่านได้สละเวลา และให้ความร่วมมือในครั้งนี้

รองศาสตราจารย์ สายพิน เกษมกิจวัฒนา
ประธานกรรมการควบคุมการวิจัย

พันตรีหญิง เพ็ญภา ภัคดีวงศ์
ผู้ดำเนินการวิจัย

การวิจัยเรื่อง การพัฒนาโมเดลความสำเร็จของ การดำรงบทบาทมารดา ของ ทฤษฎีเมอเซอร์ ในมารดาไทย ที่คิดเชื่อ

วันให้คำยินยอม วันที่.....เดือน.....พ.ศ.....

ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย รวมทั้งประโยชน์ที่จะเกิดขึ้นจากการวิจัยอย่างละเอียดและมีความเข้าใจแล้ว ผู้วิจัยรับรองว่าจะตอบคำถามต่างๆที่ข้าพเจ้าสงสัยอย่างเต็มที่ ไม่ปิดบังซ่อนเร้นจนข้าพเจ้าพอใจ

ข้าพเจ้าเข้าร่วมโครงการวิจัยนี้ด้วยความสมัครใจ และมีสิทธิบอกเลิกการเข้าร่วมในโครงการวิจัยนี้เมื่อใดก็ได้ และการบอกเลิกการเข้าร่วมการวิจัยนี้จะไม่ส่งผลกระทบต่อข้าพเจ้าจะพึงได้รับต่อไป

ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะส่วนที่เกี่ยวกับตัวข้าพเจ้าเป็นความลับ และจะเปิดเผยได้เฉพาะผลสรุปการวิจัย การเปิดเผยข้อมูลเกี่ยวกับตัวข้าพเจ้าต่อหน่วยงานต่างๆที่เกี่ยวข้องกระทำได้เฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น ผู้วิจัยรับรองว่าหากมีข้อมูลเพิ่มเติมที่ส่งผลกระทบต่อการศึกษาข้าพเจ้าจะได้รับการแจ้งให้ทราบโดยไม่ปิดบังซ่อนเร้น

ข้าพเจ้าได้อ่านข้อความข้างต้นแล้วมีความเข้าใจดีทุกประการ และได้ลงนามในใบยินยอมนี้ด้วยความเต็มใจ

ลงนาม.....ผู้ยินยอม

(หรือประทับลายนิ้วมือ)

ลงนาม.....พยาน

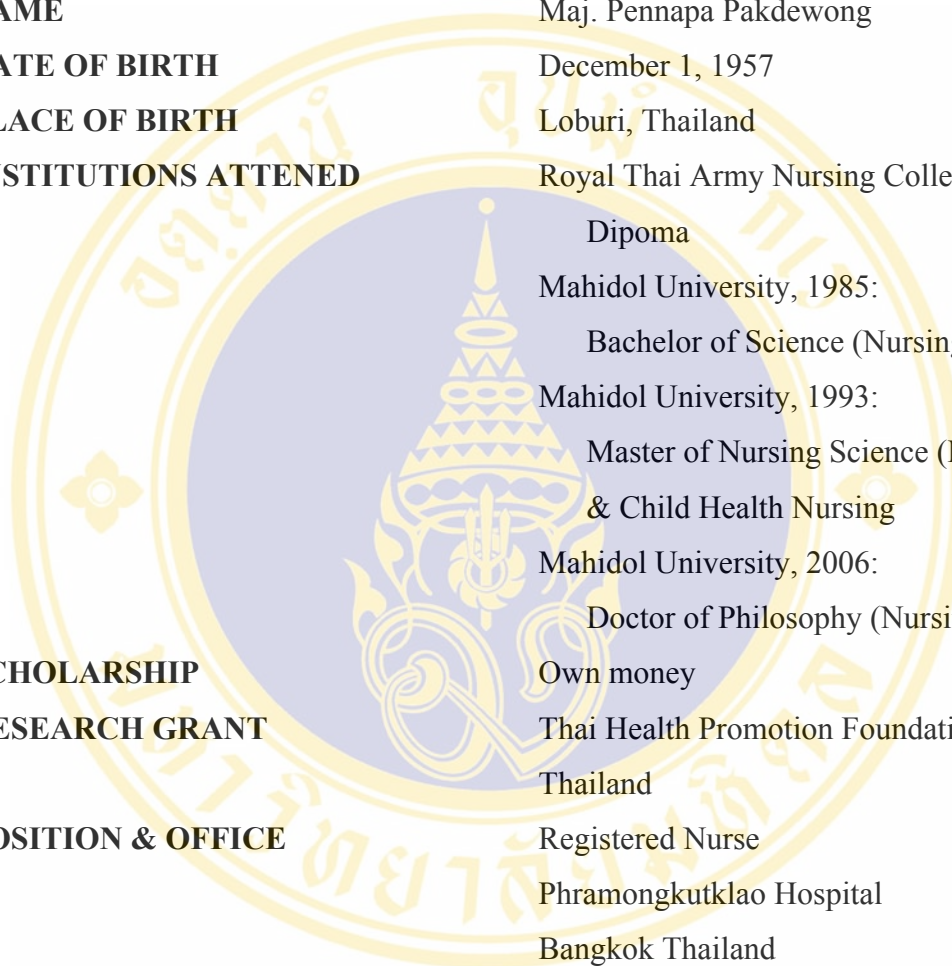
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ลงนาม.....พยาน

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ลงนาม.....ผู้วิจัย

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BIOGRAPHY

NAME	Maj. Pennapa Pakdewong
DATE OF BIRTH	December 1, 1957
PLACE OF BIRTH	Loburi, Thailand
INSTITUTIONS ATTENDED	Royal Thai Army Nursing College, 1979: Dipoma Mahidol University, 1985: Bachelor of Science (Nursing) Mahidol University, 1993: Master of Nursing Science (Maternal & Child Health Nursing) Mahidol University, 2006: Doctor of Philosophy (Nursing)
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