The Roles of Social Support, Perinatal Depressive Symptomatology and Family Conflicts Among Hong Kong Chinese Women

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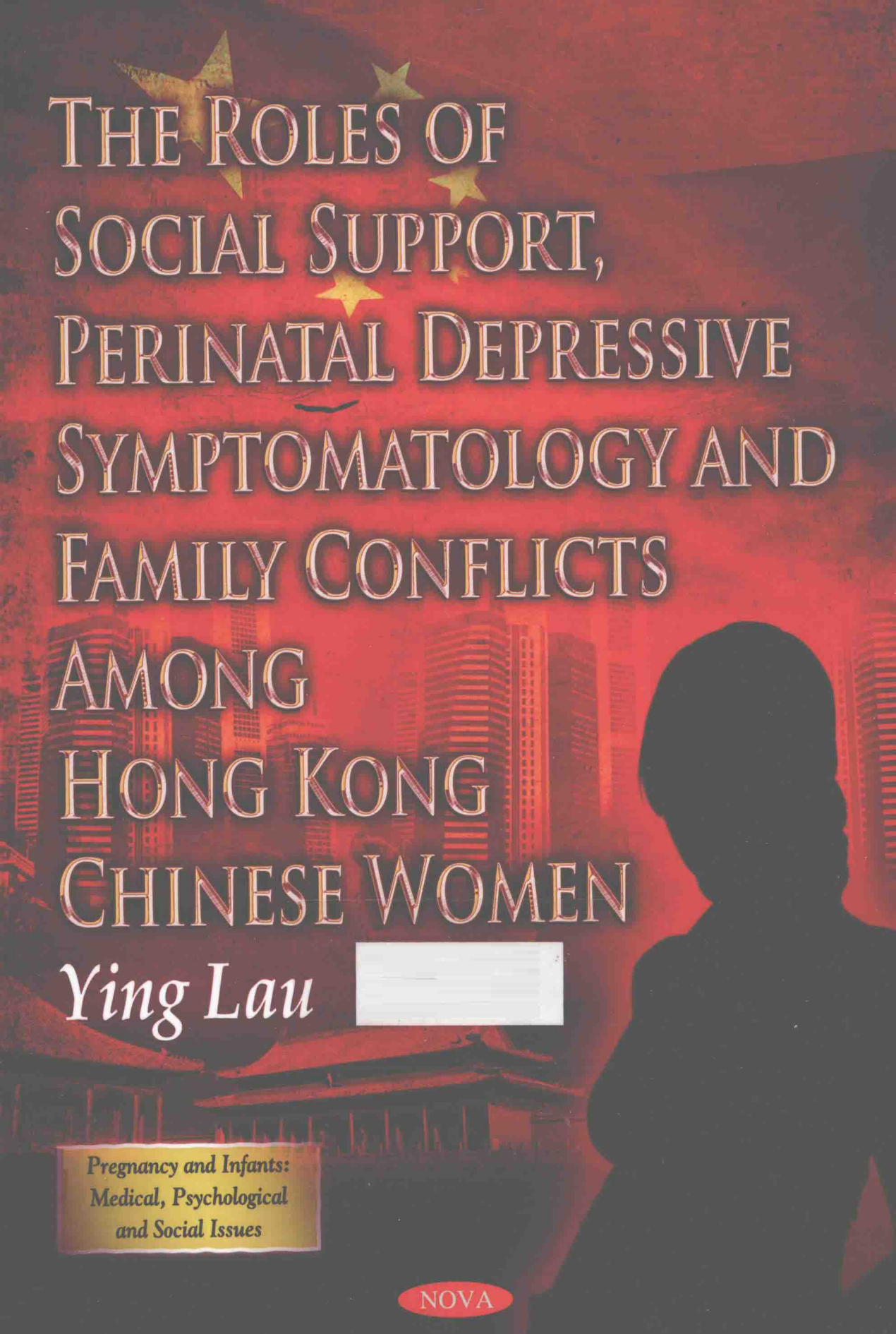

Pregnancy and Infants: Medical, Psychological and Social Issues

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PREFACE

Perinatal (antenatal and postnatal) depression is increasingly a target of improved awareness, clinical research, and public health efforts, yet remains a serious health concern for both pregnant and postpartum women. It has far-reaching consequences, affecting not only the women but also their children and relationships. Many consequences can arise among affected women, including poor prenatal care, increased social stress, and poor quality of life. Consequences for infants range from immediate risks, such as preterm delivery, lower birth weight, and neonatal complications, to longer term sequelae, such as impaired neurological, cognitive, emotional, and social development. In addition, mothers with depressive symptoms have been found to have more complex behavioral interactions with their children, to be less responsive and sensitive, and to be more intrusive in their interactions, and their children are more likely to develop an insecure attachment to their mother at 36 months.

Although pregnancy is a joyful event for most women, the perinatal period is often a stressful one, both physically and mentally. Any woman under conditions of high stress, such as conflicts with husbands and/or parents-in-law, can experience depressive symptoms, but they are especially likely during pregnancy and after the delivery of the child. Therefore, the role of social support during pregnancy is a particularly promising area of investigation. It has been postulated that social support plays an important role during traditionally stressful periods and that it plays a significant role in predicting a woman's emotional status. This area of research, the examination of the effects of social support on stressors and depressive symptoms, may shed light on some of the mechanisms that link stressors, social support, and depressive symptoms. However, the existing research on the mechanisms of the association between the different roles played by social support and depressive symptoms during the perinatal period is limited.

This book has nine chapters. Chapter 1 introduces the rationales for implementing this study, as well as the organization of the study. Chapter 2 reviews the relevant literature on the relationship and correlates of antenatal and postnatal depressive symptoms. Chapter 3 focuses on the stressors of family conflict on antenatal and postnatal depressive symptoms. Chapter 4 reviews the different roles of perceived availability of social support between stressor and outcome of perinatal depressive symptoms. Chapter 5 focuses on the modified conceptual framework based on stress and coping transactional model that is the conceptual basis for this study. Chapter 6 describes the methodology of the study. The findings of the study are presented in Chapter 7. Chapter 8 discusses the significance of the findings. Chapter 9

identifies the implications of the study, its limitations, and the future studies that might be carried out.

This book is particularly written for mental health professionals in such fields as obstetric health care professionals, psychiatric health care professionals, social worker and pregnant women. This book adds to the knowledge of how the direct, moderating, and mediating effects of the perceived availability of social support relate to antenatal and postnatal depressive symptoms among Hong Kong Chinese women. The fact remains that social support in general benefits most women, especially in certain situations and under certain conditions. Information about the roles of social support should be given to perinatal women provided either in antenatal and postnatal classes or through individual contact by mental health care professional. Preventive and early intervention for the marital and parent-in-law conflicts should emphasize. Mental health professionals can help women to identify potential risk areas for marital and parent-in-law conflict and focus on the effective components of social support interventions at different levels during different stages of perinatal period and refer the women who have problems of family conflicts to further management such as couple therapy and extended family therapy. Future studies test are needed that test theories of the different mechanisms of social support and the extent to which they succeed in improving existing maternal and child health services.

ABSTRACT

This book reports the results of a three-wave perspective longitudinal study conducted to assess the roles of social support, antenatal and postnatal depressive symptoms and family conflicts on Hong Kong Chinese women. A total of 2,095 women were recruited at five regional public hospitals to participate in a study with a three-wave perspective longitudinal design. The objectives of this study were to investigate (1) the relationship between antenatal and postnatal depressive symptoms; (2) the demo-socio-economic and obstetric correlates related to perinatal (antenatal and postnatal) depressive symptoms; (3) the relationship between stressors of marital conflicts and parent-in-law conflicts associated with these depressive symptoms; and (4) the roles of social support in influencing the outcome of depressive symptoms exhibited by participants during the second, third trimesters of pregnancy and six weeks after delivery.

A modified stress and coping model, based on the theoretical and empirical evidence, was developed to guide the study. Nine main hypotheses of the study were tested. The instruments used included the Edinburgh Postnatal Depression Scale (EPDS) for perinatal depressive symptoms, the Dyadic Adjustment Scale (DAC) for marital conflicts and the Stryker Adjustment Checklist (SAC) for parents-in-law conflicts. The interpersonal Support Evaluation List (ISEL) was adopted to measure the perceived availability of social support. All measures in this study were validated and reliable.

The SPSS for PC 17.0 software package was used for statistical analysis. Descriptive analysis was used for demo-socio-economic and obstetric characteristics. A reliability test for the several scales was used. Pearson correlations tests were used to determine the potential correlates of perinatal depressive symptoms. To further explore the significant correlates and stressors associated with depressive symptoms, multiple linear regression analyses were performed to identify the predictive level of the potential correlates, stressors and roles of social support.

The findings of the study showed a significant correlation between antenatal and postnatal depressive symptoms at three different periods. The correlates of depressive symptoms were explored in their demo-socio-economic and obstetric aspects at three stages. Multiple linear regression analyses consistently revealed that marital conflicts, father-in-law conflicts and mother-in-law conflicts were consistently significant in the regression models associated with high scores for depressive symptoms at all three stages of study ($p < 0.05$). Living with women's own parents was a consistent variable at the first and third stages ($p < 0.05$). History of antenatal and postnatal depression was a consistent variable at the first and second stages ($p < 0.05$) in the regression models associated with high scores of depressive symptoms ($p < 0.05$).

Multiple linear regression models found that women with unplanned pregnancy, history of menstrual discomfort or premenstrual mood change, history of prematurity at the first stage; those who experienced nausea and vomiting at the second stage; and those

with postnatal blue and adverse experience during pregnancy (complicated and emergency delivery) at the third stage; were significantly associated with perinatal depressive symptoms ($p < 0.05$).

The hierarchical linear regression analysis revealed that perceived availability of social support had a direct effect at three stages on perinatal depressive symptoms in the women. The moderating effect of perceived availability of social support (ISEL1) was found between marital conflicts (DAC1) or mother-in-law conflicts (SAC-M1) and perinatal depressive symptoms (EPDS1) ($p < 0.01$) at the first stage, and the moderating effect of perceived availability of social support (ISEL3) was found between father-in-law conflicts (SAC-F3) and social support ($p < 0.05$) at the third stage.

Of thirty-three sets of three regression models to assess the mediating effect of social support in the relationship between family conflict and depressive symptoms with different combinations of their total scores or subscales of different measures, only three sets confirmed the mediating effect of social support, namely (1) social support total score (ISEL2) in the relationship between dyadic cohesion (DAS-DCC1) and depressive symptoms (EPDS3) ($p < 0.001$) ; (2) social support total score (ISEL2) in the relationships between mother-in-law tension (SAC-MT1) and depressive symptoms (EPDS3) ($p < 0.001$); and (3) emotional support (ISEL-ES2) in the relationship between mother-in-law tension (SAC-MT1) and depressive symptoms (EPDS3) ($p < 0.001$).

The findings provide important information for the primary, secondary and tertiary prevention of perinatal depressive symptoms among the Hong Kong population. The limitations of these findings, and directions for future research, are discussed.

CONTENTS

Chapter 1

INTRODUCTION

1.1. INTRODUCTION

There is a popular image of the pregnant woman as 'blooming', with improved physical and emotional health. This is often far from the truth. Particularly notable is that women vary enormously in their response to pregnancy, and there is a similar variation with each stage of pregnancy, so that professionals need to be sensitive to women's differing needs for emotional support at any particular time. Pregnancy may be entered into as an attempt to gain attention, as an escape from an unwelcome situation, to mend a failing relationship, or to provide a love subject (i.e., the baby). Worst of all, and most likely to fail, is the expectation that the child will bring about love and care to a woman who has lacked it in her life so far (Riley, 1995).

Becoming a mother is a major transition in a woman's life that requires physical, social, and emotional adaptation (Ip, Chien, and Chan, 2003). Of concern to birth women and, therefore, to clinicians and researchers, is that antenatal depressive symptoms and postnatal depressive symptoms are often unexpected companions for women during the journey through pregnancy and the postnatal period.

Depressive symptoms are common in women and typically emerge during the childbearing year (Kessler, Mc Gongale, Swartz, Blazer, and Nelson, 1993), but women at risk are rarely recognized during pregnancy (Nielsen Forman, Videbech, Hedegaarde, and Dalby Salvig, 2000). Antenatal depressive symptoms have been relatively neglected compared with the attention paid to postnatal depressive symptoms. Studies over a number of years and with different approaches have found rates of depressive symptoms during pregnancy at least as high as during the postnatal period (Evans, Heron, Francomb, Oke, and Golding, 2001; Johanson, Chapman, Murray, Johnson, and Cox, 2000). The following are three rationales for this study: (1) the significance of the problems, (2) the impacts of untreated depressive symptoms during the perinatal period and (3) the potential contribution of the findings.

1.2. Significance of Problems

1.2.1. Gender Difference in Depressive Symptoms

Women are at an increased risk for first onset of major depressive symptoms from early adolescence until their mid-50s and have a lifetime rate of major depressive disorders 1.7 to 2.7 times greater than that for men (Burt and Stein, 2002). More than 20% of women will experience an episode of depressive disorder during their lifetimes (Sinclair and Murray, 1998), and the usual age of onset and time of greatest risk is 20 – 40 years, thus coinciding with the childbearing years of most women (Weissman and Olfson, 1995). Thus, depressive symptoms are prevalent conditions among women of childbearing age, and there is a need for an improved understanding of the relation between depressive symptoms during pregnancy and during the postpartum period.

1.2.2. Cost of Depression

Depression is the most common of all the psychiatric disorders. Each year, more than 100 million people worldwide develop clinically recognizable depression (Hersen and Bellack, 2000). The costs of depression are significant. For example, in terms of economic costs, one study found that depression places a burden of over $30 billion per year on the United States economy (Rice and Miller, 1995). Depression also has a significant personal cost. One study found that as many as 15% of individuals with severe recurrent depression attempt to commit suicide (Hirschfeld and Davidson, 1988). *Health People 2010* identifies depression as 1 of 10 leading public health concerns in the United States (US Department of Health and Human Services, 2002).

1.2.3. Ignoring of Perinatal Depressive Symptoms

Depressive symptoms during pregnancy and the postnatal period have been ignored in the past for a number of reasons. Firstly, it is common for a depressed woman, her family, and sometimes even her doctor, to misinterpret symptoms of depression (such as low mood, tearfulness, irritability, insomnia, and poor appetite) as being a 'normal' experience of motherhood or an adjustment in reaction to perpetual sleep deprivation and physical exhaustion (Lee and Chung, 1999). This misunderstanding is perhaps not so surprising, given that mental health issues are poorly covered in Hong Kong. Secondly, because of the inherent stigma of mental illness, mothers who are conscious of their depression may fear that they will be labeled by their family and friends as 'mad and bad' and not fit to take care of a child (Holden, 1996). Therefore, women with depressive symptoms may be afraid to seek help and try to appear normal to their families and friends. Sometimes, the partners and families may also collude with the denial to avoid bringing stigma to the family. This fear, together with self-denial, often prevents the woman from seeking help (Lee and Chung, 1999).

1.2.4. Under-Diagnosis of Depressive Symptoms

Although depression usually first presents itself in a primary care setting, it tends to be under-diagnosed and is often untreated (Panzarino, 1998). Various reasons have been proposed for this. (1) Physician education in the diagnosis and management of depression in medical schools and primary care postgraduate training is often inadequate. (2) Patients often do not recognize that they are depressed, and those who do may be prevented from seeking help by the shame and stigmatization still associated with mental illness. (3) Many current health care systems view depression as a single, short-term event and fail to recognize that this disorder is often chronic and recurring.

1.2.5. Depressive Symptoms in Hong Kong During Perinatal Period

In 1996, a journalist from one of leading local Chinese-language newspapers examined press reports of seven suicidal women who had given birth in the preceding months (Fong, 1996). They leapt to their deaths from tall buildings, including one who carried her child with her. All the women had symptoms of depression after confinement. Suicide remains one of the common outcomes of depression (World Health Organization, 2001). In addition to maternal death, it is necessary to consider the concurrent potential loss of the life of the unborn child (Fong, 1996).

An investigative group from the Psychiatric Department in Hong Kong also revealed that more than one in seven mothers-to-be suffer clinically significant depression during pregnancy (Lau, 2002). This would imply that out of about 50,000 babies born each year in Hong Kong, about 7,500 pregnant women will, in different measures, be affected by antenatal depression, and the group predicted that babies born to women who experience depression during pregnancy are 2.2 times more likely to need some form of medical care later on in life (Lau, 2002). However, there have only been a few published studies on depression associated with pregnancy in Hong Kong (Yip and Lee, 1997).

The findings of antenatal and postnatal depressive symptoms are inconsistent in the few local studies. One study found that the prevalence of antenatal depressive symptoms was 10% (Chung, Lau, Yip, Chiu, and Lee, 2001) in one hospital but another study found that the prevalence of antenatal depression was 6.4% (Lee et al., 2004) in the same hospital.Incidence rates for postnatal depressive symptoms range from 4.7% to 5.5% (Lee, Yip, Chiu, Leung, and Chung, 2001); 11.3 % to 11.7% (Lee, Yip, Leung, and Chung, 2000; Lee et al., 1998); to 20% (Leung, 2001). The inconsistent findings may relate to differences in the measures, time periods, definitions and procedures. Therefore, it is difficult to interpret the phenomena of antenatal or postnatal depressive symptoms in Hong Kong. What of the relationship of depressive symptoms during the antenatal and during the postnatal periods? What are the correlates or stressors related to depressive symptoms? What are the mechanisms between variables? The above questions cannot be answered from existing knowledge.

1.3. Impacts of Untreated Depressive Symptoms During Perinatal Period

1.3.1. Impacts of Antenatal Depressive Symptoms

Antenatal depressive symptoms are important because antenatal psychological distress has been shown by the literature to adversely affect obstetric woman, husband /partner, and mother-infant interactions, and the future of children.

1.3.1.1. Impacts of Antenatal Depressive Symptoms on Mothers

Antenatal depressive symptoms are also an important phenomenon in their own right. Studies show that maternal depressive symptoms during pregnancy are associated with increased uterine artery resistance (Teixeira, Fisk, and Glover, 1999), pre-eclampsia (Kurki, Hilesmaa, Raitasalo, Mattila, and Ylikorkala, 2000; MacKay, Berg, and Atrash, 2001) and spontaneous pre-term birth (Bayan et al., 2002; Orr, James, and Blackmore, 2002). Another study reports a nearly 2-fold increase in the risk of operative deliveries among patients with depressive symptoms (Chung et al., 2001). In this study, the authors found that depression in the third trimester is associated with increased risk of epidural analgesia, emergency caesarean section, and admission to a neonatal care unit (Chung et al., 2001). Hence, there is growing evidence that points to the close relationship between maternal antenatal psychological well-being on one hand, and peripartum obstetric and neonatal outcomes on the other hand.

Antenatal depressive symptoms have been associated with an increase in the risk of functional impairment (Birndorf, Madden, Portera, and Leon, 2001), somatic symptoms (Andersson et al., 2003; Kelly, Russo, and Katon, 2001), poor health-related quality of life (Orr et al., 2002), fear of childbirth (Andersson et al., 2003) and ideation of self-injurious or suicidal behaviors (Birndorf et al., 2001) in the mother, but they also may contribute to inadequate self-care and poor compliance with antenatal care (Kelly, Zatzick, and Anders, 2001). Women with depressive symptoms often have decreased appetites and consequently lower-than-expected weight gains in pregnancy, which are factors that have been associated with negative pregnancy outcomes (Orr and Miller, 1995).

Studies have shown that women with maternal depressive symptoms during pregnancy are more likely to smoke and engage in substance abuse (Kelly, Zatzick et al., 2001; Kitamura, Shima, Sugawara, and Toda, 1996; Pajulo, Savonlahti, Sourander, Helenius, and Piha, 2001; Zuckerman, Amaro, and Bauchner, 1989), behaviors that further increase risk to the fetus. Depression in depressive pregnant women has been found to related to both significantly lower parental and maternal care and to significantly higher parental and maternal overprotection of their children (Kitamura, Sugawara, Sugawara, Toda, and Shima, 1996).

Depressive symptoms during the prenatal period have been identified as a risk factor for postnatal depressive symptoms (Barrio and Burt, 2000). Approximately one-third of women who experience depression throughout their pregnancy remain depressed following the birth of their child (Gotlib, Whiffen, Mount, Milne, and Cordy, 1989). Furthermore, antenatal depressive symptoms are significantly associated with postnatal depressive symptoms; this relationship will be investigated in more detail in the next section of this chapter.

1.3.1.2. Impact of Antenatal Depressive Symptoms on Partner

Studies have found that antenatal depressive symptoms in women are associated with partners' depressed mood (Deater-Deckard, Pickering, Dunn, and Golding, 1998; Matthey, Barnett, Ungerer, and Waters, 2000). One review study found that antenatal psychiatric disturbances of women were associated with adverse postpartum family outcomes, such as poor relationship with husband/partner (Wilson et al., 1996). Whether the depressive mood of the husband/partner is the cause or the result of pregnant women's depressive mood is not very clear; further quantification is needed. Thus, antenatal depressive symptoms may have significant negative effects that extend well beyond the pregnancy.

1.3.1.3. Impact of Antenatal Depressive Symptoms on Mother-Infant Interaction

Maternal depressive symptoms may also have a significant impact on the family unit. Depression is typically associated with interpersonal difficulties and disruptions in mother-child interactions and attachment, and so may have a profound impact on infant development. Already as newborns, infants of prenatally-depressed mothers showed a profile of dysregulation in behavior, physiology and biochemistry, suggesting an effect of prenatal exposure to biochemical imbalance in their mothers (Field, 1998).

Little is know about antenatal transmission of depression to the fetus. One review study assumed that negative effects on the infant derive from early mother-baby interactions (Bennett, Einarson, Taddio, Koren, and Einarson, 2004). Infants of depressed mothers have exhibited 'depression-like' behavior, such as few expressions of interest, more pre-crying expressions, excessive crying, lower orientation scores, motor behavior cluster, inferior excitability, and more abnormal reflexes prior to substantial mother-baby interactions (Lundy and Field, 1996; Lundy, Jones, and Field, 1999).

1.3.1.4. Impact of Antenatal Depressive Symptoms on Future Children

In addition, current research suggests that maternal depressive symptoms may adversely affect the developing fetus. Although it has been difficult to assess the impact of antenatal depressive symptoms on fetal development and neonatal well-being in humans, several studies have found an association between maternal depressive symptoms and factors which predict poor neonatal outcome, including pre-term birth, lower birth weight, smaller head circumference, lower Apgar scores (Dayan et al., 2002; Orr et al., 2002; Orr and Miller, 1995; Steer, Scholl, Hediger, and Fischer, 1992; Zuckerman, Bauchner, Parker, and Cabral, 1990) and growth retardation (Hoffman and Hatch, 2000; Zuckerman et al., 1989).

The physiological mechanism by which symptoms of depression might affect neonatal outcomes is not clear. However, increased cortisol and catecholamine levels, which are typically observed in depressive clients, may affect placental function by altering uterine blood flow and inducing uterine irritability (Alves et al., 1997; Teixeira et al., 1999). Dysregulation of the hypothalamic-pituitary-adrenal (HPA) axis, which is associated with depressive symptoms, may also have a direct effect on fetal development. Animal studies suggest that stress during pregnancy is also associated with neuronal death and abnormal development of neural structures in the fetal brain, as well as sustained dysfunction on the HPA axis in the offspring (Alves et al., 1997; Glover, 1997).

Research studies indicate that children of depressed mothers are more likely to have behavioral problems and to exhibit disruptions in cognitive and emotional development

(Murray and Cooper, 1997; O'Connor, Heron, Glover, and The Alspac Study Team, 2002; O'Connor, Heron, Golding, Beveridge, and Glover, 2002; Weinberg and Tronick, 1998). Moreover, two reports of depression during pregnancy associate it with inferior performance on the Brazelton Neonatal Behavioral Assessment Scale (Lundy et al., 1998). A study from Finland that followed mothers and children up to the children's school age concluded that maternal depressive symptomatology at any time, but especially prenatally, was a risk factor for a child's well being (Louma et al., 2001).

1.3.2. Impact of Postnatal Depressive Symptoms

Evidence of the negative impacts of postnatal depressive symptoms on mothers, husbands/partners, child-mother interaction and children follows.

1.3.2.1. Impact of Postnatal Depressive Symptoms on Mothers

Women who have become depressed in the postnatal period are more likely to experience further depressive episodes, particularly after subsequent birth (James, 1998). Depressed mothers make more negative appraisals of their children's behaviors, which may lead to maladaptive parenting styles (Cummings and Davies, 1994). Other studies found that maternal depression was associated with an increased likelihood of smoking (Leiferman, 2002), higher reports of taking children to the emergency department (Bartlett et al., 2001), lower likelihood of attending to infant immunizations (Howard, Goss, Leese, and Thornicroft, 2003), not administering vitamins to a child, and not restraining children appropriately in car seats (Leiferman, 2002). Yet another study finds women who have suffered maternal depression are less sensitive to their infants, and are less affirming and more negating of infant experience (Murray, Fiori-Cowley, and Hooper, 1996). Primiparous depressive mothers had difficulties bathing their infants and multiparous depressive mothers presented more symptoms of tiredness (Righetti-Veltema, Conne-Perreard, Bousquet, and Manzano, 2002).

1.3.2.2. Impact of Postnatal Depressive Symptoms on Partners

Partners' postnatal depressive symptoms are consistently and significantly associated with women's depressive symptoms (Dudley, Roy, Kelk, and Bernard, 2001; Soliday, McCluskey-Fawcett, and O'Brien, 1999). In addition, fathers of babies were significantly more likely to be depressed if their partners were experiencing depressive moods (Deater-Deckard et al., 1998; Dudley et al., 2001; Zelkowitz and Milet, 2001). One review study also found that postnatal depressive mood among women was identified as the strongest predictor of parental depressive mood during the postpartum period (Goodman, 2004).

1.3.2.3. Impact of Postnatal Depressive Symptoms on Mother-Child Interaction

Studies have found that postnatally-depressive mothers had disturbances in early mother-infant interaction (Edhborg, Lundh, Seimyr, and Widstrom, 2001; Murray et al., 1996). Babies of depressive mothers engaged in less vocal and visual communication and had less corporal interaction with mothers (Righetti-Veltema et al., 2002), and showed less joy with their mothers (Edhborg et al., 2001).

1.3.2.4. Impact of Postnatal Depressive Symptoms on Infants

Studies show that infants of postnatally-depressive mothers exhibited developmental delays (Field, 1992), poor attachment (Murray et al., 1996), poor cognitive outcomes (Murray et al., 1996), and lower attention skills in a free play situation (Edhborg et al., 2001); that they experienced deleterious effects in functional aspects, such as eating or sleeping difficulties; and that they smiled less often (Righetti-Veltema et al., 2002). Such children have been found to have mental health problems (Essex, Klein, Miech, and Smider, 2001) in kindergarten, behavioral problems at preschool ages (Field, Lang, Martine, Yando, and Bendell, 1996) and low social competence at school age (Luoma et al., 2001).

1.4. Potential Contributions of the Findings

Depressive symptoms during pregnancy or postnatal period increase the risk of onset of physical and social disability (Bennett, Einarson, Taddio, and Koren, 2004), which is associated with increases in medical resource consumption and decreased productivity levels (Ormel et al., 1999), which have an impact not only on the women but also on family members, friends, employers, and society (Clark, 1998). Equally important are the outcomes related to the pregnancy itself. Therefore, the findings of this research can hopefully highlight the health needs of obstetric women and enhance obstetric services for promoting their mental health during the perinatal period of Hong Kong obstetric women. The potential contributions are at four levels.

1.4.1. Policy Level:

1.4.1.1. Resource Relocation within Health Care System

Valid information on the relationship between antenatal and postnatal depressive symptoms is important because such information can identify the level of the health problem burden on the population and health care system (US Department of Health and Human Services, 2002). Strategies for management of perinatal depressive symptoms require such knowledge for optimizing prevention and treatment interventions at a macro-level (Bennett, Einarson, Taddio, and Koren, 2004). These might include public health education about antenatal and postnatal depressive symptoms via the mass media and in health care settings and community settings. Such approaches could enhance the understanding of women and help to prevent and deal with this health problem more effectively and efficiently. Moreover, these findings may alert policy makers to ensure adequacy of healthcare resources for solving this health problem.

1.4.2. Institutional Level

1.4.2.1. Planning Mental Health Services During Perinatal Period

The knowledge of stressors and correlates associated with depressive symptoms, as well as the relationship between antenatal and postnatal depressive symptoms within the obstetric