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**TOWARDS IMPROVING PERINATAL
MATERNAL MENTAL HEALTH IN
VIETNAM**

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ABSTRACT

Major depression is increasing world-wide, and is the third leading cause of the global disease burden. In Vietnam, perinatal depression is underdiagnosed and under-treated, leading to severe consequences for the pregnant mother, her child and surroundings.

AIMS: The overall aim was to improve knowledge about perinatal depression to contribute to evidence based development of prevention and treatment strategies in Vietnam. The specific aims were: To generate a report of the mental health priorities in Vietnam (Study I); To elicit illness explanatory models of depression and postnatal depression (Study II); To provide information for the contextual adaptation of a mindfulness based intervention for antenatal depression for use in a semi-rural context in Vietnam (Study III); To examine the association of low birth weight and prematurity with antenatal depression (Study IV).

METHODS: Study I was conducted in the Hanoi area. Studies II, III and IV were conducted within a Demographic Surveillance System, in the Ba Vi district of the Hanoi province. Study I used snowball sampling to identify informants for generating a Mental Health Country Profile, and data was gathered through semi-structured interviews and collection of reports and documents. In study II illness explanatory models of depression and postnatal depression were elicited from mothers and health workers, through semi-structured interviews. In study III, individual interviews addressing the experience of depression during pregnancy were conducted with nine women who obtained high scores in a depression self-report measure during pregnancy. Two focus group discussions with health workers and two with elderly women from the local community addressed the perceptions of depression and the suitability and provision of a mindfulness intervention. Study IV was a prospective community-based cohort study, where severity of antenatal depression symptoms was assessed and its association with low birth weight and preterm birth was examined. Reproductive and sociodemographic risk-factors were measured as potential confounders.

RESULTS: Strengths of the Vietnam mental health system included the aims to move toward community management and detection of mental illness. Weaknesses include the lack of choice and availability of treatments apart from medications, the high proportion of treatments to be paid out-of-pocket, prominence of large tertiary psychiatric hospitals, and a lack of preventative measures (Study I). The causation of perinatal depression was described as predominantly somatosocial. Psychiatric treatment was seldom recommended, and depression was described as not openly spoken of by those afflicted (Studies II and III). The mindfulness intervention was thought suitable for the local context and delivery through community meetings was recommended (Study III). The prevalence of antenatal depression was 5.7%, and it was significantly associated with preterm birth (Adj OR: 3.09, CI_{95%} 1.18-8.10) (Study IV).

CONCLUSIONS: The stigma of depression emerged as potentially significant through the qualitative studies and prevalent social adversities were found to be relevant for causation of perinatal depression which is associated to preterm birth. Low-cost psychological treatment modalities that do not depend of highly trained mental health personnel should be developed. Mindfulness based interventions appear to be a locally feasible. An approach to depression management that focuses solely on individual pathology will fail to address these causes and thus, multiple sectors in society should be involved in prevention.

LIST OF PUBLICATIONS

This doctoral thesis is based on the following studies, referred to in the text by their roman numerals:

- I. Niemi, M., Thanh, H. T., Tuan, T., Falkenberg, T. (2010) Mental health priorities in Vietnam: a mixed-methods analysis. *BMC Health Services Research*, vol. 10, p. 257
- II. Niemi, M., Falkenberg, T., Nguyen, M. T., Patel, V., Faxelid, E. (2010) The social contexts of depression during motherhood: a study of Explanatory Models in Vietnam. *Journal of Affective Disorders*, vol. 124 (1-2), pp: 29-37
- III. Niemi, M., Nguyen, M. T., Bartley, T., Faxelid, E., Falkenberg, T. (2011) The contextual adaptation of a mindfulness intervention – a qualitative study in a semi-rural district of Vietnam, *unpublished manuscript*.
- IV. Niemi, M., Falkenberg, T., Petzold, M., Trang, N. N. M., Chuc, N. T. K., Patel, V. (2011) Antenatal depression and perinatal outcomes: a prospective cohort study in a semi-rural district of Vietnam, *unpublished manuscript*

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LIST OF ABBREVIATIONS

DSM-IV	Diagnostic and Statistical Manual for Mental Disorders IV
PND	Postnatal depression
AND	Antenatal depression
EPDS	Edinburgh Postnatal Depression Scale
EDS	Edinburgh Depression Scale
LBW	Low birth weight
IPT	Interpersonal Therapy
CBT	Cognitive Behavioral Therapy
NGO	Non-Governmental Organization
EM	(illness) explanatory model
TCM	Traditional Chinese Medicine
TVM	Traditional Vietnamese Medicine
MBCT	Mindfulness Based Cognitive Therapy
MBSR	Mindfulness Based Stress Reduction
MBCP	Mindfulness Based Childbirth and Parenting
DSS	Demographic Surveillance System
MoH	Ministry of Health
NIMH	National Institute of Mental Health
NCD	Non-communicable disease
WHO	World Health Organization
FGD	Focus Group Discussion
Sida	Swedish International Development Agency
OR	Odds Ratio
CI _{95%}	95% Confidence Interval
SD	Standard Deviation
ICD-10	International Statistical Classification of Diseases – 10 th Revision
GP	General Practitioner
LMP	Last menstrual period
UNFPA	United Nations Population Fund

1 BACKGROUND

1.1 INTRODUCTION

This thesis aims to provide evidence based information to develop the management of perinatal depression in Vietnam. To date, perinatal depression is both underdiagnosed and under-treated in the Vietnamese context, but is an illness that carries severe consequences for the pregnant mother, her child and surroundings. Through this thesis I will provide background knowledge that will be useful for the planning regarding depression treatment, management and prevention in Vietnam.

My interest in this topic initially arose in 2004, after the completion of my MSc in Culture and Mental Health at University College London. I had enrolled in that MSc program after completing a Bachelor's exam in Neuroscience, as I did not feel satisfied with the predominantly pharmacological and brain-based approach to mental health and illness provided during my BSc. Through my MSc I learnt more about the strong cultural and social influences on mental illness causation, conceptualization and treatment. I also learnt about non-biomedical treatment approaches to mental illness, which at times made more sense to me than a purely biomedical approach. In 2004, I came in contact with my to-be PhD supervisor Torkel Falkenberg. With a research career in complementary, alternative and traditional medicine, Torkel encouraged me to pursue my interest in learning more about non-Western understandings and treatment of mental illness. In 2005, my project topic began to crystallize into planning a clinical trial of a Buddhist meditation-based therapy in Vietnam, Thailand and India. That project planning led to a number of interesting meetings and workshops, both with enthusiastic European research partners and with interested researchers, clinicians and policy-makers from Vietnam, Thailand and India. However, as it turned out, the time for a full-scale multi-center clinical trial of a mindfulness-based therapy in these three Asian countries was not ripe in 2006, and much basic research was still to be conducted before any such plans could be realized. Thus, this thesis work provides the basis for planning and implementing a locally feasible, contextually sensitive psychological treatment and prevention approach for perinatal depression in Vietnam.

1.2 PERINATAL DEPRESSION

1.2.1 Perinatal depression in Vietnam

Depression is very rarely diagnosed in primary care settings in Vietnam, and those afflicted seek professional care only when the illness is severe (Nguyen, Hunt et al. 2005). Among suicide attempters in Hanoi, only six percent had received a psychiatric diagnosis prior to the attempt (Thanh, Jiang et al. 2005). In Ho Chi Minh City, Vietnam, a study has shown that a larger proportion of Vietnamese women obtain a high score in measures of postnatal depression, than those in high income countries (33% and 10-15% respectively) (Fisher, Morrow et al. 2004). Also, a recent study in North Vietnam showed a 29.9% prevalence rate of common perinatal mental disorders, with higher rates in rural regions (Fisher, Tran et al. 2010). On the other hand, a small exploratory study performed at an urban antenatal clinic in Hanoi, Vietnam, with relatively socio-economically advantaged women found a low incidence rate (1.6 %) of antenatal depression (Fisher, Tran et al. 2007).

1.2.2 Perinatal depression globally

Major depression is increasing world-wide, and is the third leading cause of the global disease burden (WHO 2008). Counter to prevalent misconceptions, mental illness is at least as common in low income countries than in high income countries (IOM 2001). Women may have an increased risk of depression during pregnancy which can harm the mother, the child and the surroundings in serious ways concerning morbidity and mortality (Areias, Kumar et al. 1996; Dossett 2008). However, some studies have found depression during pregnancy not to be more common than in women in the same age group in general (Bennett, Einarson et al. 2004). Nevertheless, the impact of depression is significant in Southeast Asia (WHO 2008) and on women – especially in the childbearing age (15-44 years) (Bodnar and Wisner 2005), where depression is already the global leader in terms of disease-related disability (Kessler 2003; WHO 2008).

Internationally used diagnostic criteria for major depression with postnatal onset are given in the Diagnostic and Statistical Manual for Mental Disorders IV (DSM-IV) (See Box 1). The symptoms are not different from those that occur with mood disorders not related to childbearing. Postnatal depression (PND) should not be confused with the milder depression termed postnatal blues/dysphoria, which is experienced by 25-40% of women in the first week after partus (Reicher-Rössler and Rohde 2005). While there has been quite some attention directed to postnatal depression, antenatal depression (AND) has not yet received as much attention in the clinical, research or public health agenda (Misri and Joe 2008). The prevalence estimates of postnatal depression vary in accordance with the diagnostic criteria used and the time period observed. Studies using standardized diagnoses have found prevalence rates ranging from 6.5% to 22%, and the mean 1-year prevalence rate is 13% (reviewed in Misri and Joe 2008). In studies using self-rating scales such as the Edinburgh Postnatal Depression Scale (EPDS) the estimated rates are somewhat higher (ibid.). Studies have also shown that 10% of fathers become depressed in the postnatal period (Edhborg, Lundh et al. 2003; Paulson, Dauber et al. 2006) and this further reduces family resilience. However, symptoms of anxiety and depression are more common in late pregnancy than in the postnatal period (Heron, O'Connor et al. 2004). Since antenatal and postnatal depression are intimately linked (see below), this thesis work studies aspects of both, commonly termed perinatal depression.

Box 1: Diagnostic criteria for major depression and postnatal depression, DSM-IV (Frances 1994)

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

Note: Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations.

1. depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful).
2. markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others)
3. significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day.
4. insomnia or hypersomnia nearly every day
5. psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)
6. fatigue or loss of energy nearly every day
7. feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)
8. diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)
9. recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

B. The symptoms do not meet criteria for a Mixed Episode.

C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).

E. The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.

Specify (for current or most recent episode): With postnatal onset (within 4 weeks postnatally)

1.2.3 Determinants and consequences

From the standpoint of psychology, the childbearing period is the most complex event in human experience, reflected in the large number of disorders described (Brockington 2005). This complexity includes somatic, social and psychological components (Brockington 2005), which are described in detail below.

1.2.3.1 Risk-factors for perinatal depression

The main risk factor which has been identified for postnatal depression is an individual predisposition, in that the person has already been suffering from similar episodes earlier and there is a corresponding family history (Bloch, Rotenberg et al. 2006; Forty, Jones et al. 2006). The risk group includes those who have had previous episodes of PND, or those with a history of depression, bipolar disorder, schizophrenia and premenstrual dysphoric disorder (Bloch, Rotenberg et al. 2005). In addition, some Axis II personality disorders including avoidant, dependent, passive aggressive, obsessive-compulsive, histrionic, narcissistic and borderline personality disorders confer an increased risk (Akman, Kuscu et al. 2006). Also, genetic factors account for 25-38% of the variance in postnatal depression (Treloar, Martin et al. 1999). The predictors that have otherwise been consistently found include anxiety and depression during pregnancy, baby blues, stress in child care or general stress, little social support and marital problems (Beck 1996). There are also biological stressors in the postnatal period that may increase the vulnerability to depression. During pregnancy the woman's serum oestrogen levels are about 200-fold higher than normal, but drop down to normal levels within a few days from delivery. Some studies have identified this drop in oestrogen levels as a specific trigger for depression (Klier, Muzik et al. 2007).

Consistent risk factors in Asian countries for postnatal depression include economic deprivation, low education, marital disharmony, violence and lack of social support (Chandran, Tharyan et al. 2002; Patel, Rodrigues et al. 2002; Rahman, Iqbal et al. 2003; Fisher, Morrow et al. 2004; Liabsuetrakul, Vittayanont et al. 2007). The pressure to conceive a male child has been found to be a determinant of postnatal depression in India (Patel, Rodrigues et al. 2002). The risk factors for AND are similar to those for PND (Bowen and Muhajarine 2006).

1.2.3.2 Consequences of perinatal depression

1.2.3.2.1 Psychosocial consequences

Maternal attachment and bonding disorders toward the infant are much more common in those who seek help for postnatal depression (Kumar 1997), and a study has found antenatal depression to be an important factor (unpublished, reviewed in Brockington 2008). Long-term effects of impaired mother-infant bonding include insecure attachment at 18 months, learning deficits as well as child abuse, child neglect and filicide from the mother's side. For appropriate infant-mother bonding to occur, the mother needs to be alert to her baby's signals, but a severely depressed mother is impaired in this capability due to apathy and withdrawal. Even a mildly depressed mother can become sad, irritable and fatigued (Chase-Brand 2008). The cumulative effect of impaired bonding is a "depressed dyad" of mother and infant (Edhborg, Lundh et al. 2003). Severe postnatal depression can even precipitate psychosis, which can lead

to an increased risk of neglect, abuse, infanticide and suicide (Hatters Friedman, Hrouda et al. 2005). Other impacts of postnatal depression are that mothers are less likely to talk or play with their children, show them books, keep them on a daily routine, limit TV watching time, or observe fundamental infant safety precautions, as well as more likely to use harsh punishments (McLearn, Minkovitz et al. 2006). Also, children of depressed mothers are less likely to be up-to-date with their immunizations, more likely to miss well-baby appointments and to have had emergency room visits (Minkovitz, Strobino et al. 2005). Adding to the vicious cycle of postnatal depression, babies of depressed mothers are more prone to baby colic, which may aggravate the mother's depression and proneness to abuse (Akman, Kuscu et al. 2006). Consequences of untreated antenatal depression are severe and include substance abuse, functional impairment, increased risk of postnatal depression and poor pregnancy outcomes (Freeman, Smith et al. 2002; Bennett, Einarson et al. 2004).

1.2.3.2.2 Physical consequences

Evidence from the South Asian region, home to more than half of the underweight children in the world (Bhutta 2000), reveals that depressive disorders affecting mothers are an important cause of low birth weight, childhood stunting, under nutrition and adverse mental development (Patel, DeSouza et al. 2003; Rahman, Iqbal et al. 2004; Rahman, Lovel et al. 2004). Preterm birth and low birth weight (LBW) are major determinants of infant mortality and morbidity (Beck 1996), and among the almost eight million children that die each year, 4.6% come from South-East Asia (You, Jones et al. 2011). The major determinants of fetal growth restriction and preterm birth include maternal stress, infections, malnutrition and tobacco/alcohol consumption (reviewed in Matthews and Meaney 2005). A LBW infant, i.e. below 2500 grams (WHO 2009), is at higher risk of facing a number of health problems, such as adverse cognitive development (Leitner, Fattal-Valevski et al. 2007), chronic diseases (Martin-Gronert and Ozanne 2007) or inhibited growth (Diego, Field et al. 2009). Individuals that are small for gestational age are at significantly greater risk for type II diabetes, cardiovascular disease and hypertension (Reynolds and Phillips 1998). Preterm birth, i.e. birth before 37 completed weeks of gestation, is associated with increased rates of cerebral palsy, sensory deficits, learning disabilities and respiratory illnesses (Beck, Wojdyla et al. 2010). Failure to thrive means infants, toddlers or preschool children who fall below the 5th percentile on growth curves and this can be a result of the mother's mental illness or emotional deprivation, in which case it is termed non organic failure to thrive. For instance in rural Pakistan a study showed a 4-fold rate of infants being undernourished or stunted when the mother was affected by postnatal depression (Rahman, Iqbal et al. 2004). Fetal growth retardation and the quality of postnatal parental care are major predictors of mood disorders later in life (Thompson, Syddall et al. 2001). Also, preterm birth and intrauterine growth restriction are consistently associated with cognitive impairments (Lagercrantz 1997)

Furthermore, antenatal depression carries negative impact on the pregnant women regarding attendance at antenatal care, substance abuse and lower weight gain during pregnancy (Dayan, Creveuil et al. 2002; Stewart 2005), which in turn increase the likelihood of preterm birth, LBW and neonatal mortality (Bonari, Pinto et al. 2004). While a number of studies in high income countries have shown an association between

antenatal depression and preterm birth (Dayan, Creveuil et al. 2006; Suri, Altshuler et al. 2007; Field, Diego et al. 2009), there is a paucity of equivalent studies performed in low income countries. On the other hand, some studies from India (Patel and Prince 2006), Pakistan (Rahman, Bunn et al. 2007) and Brazil (Ferri, Mitsuhiro et al. 2007) have shown an association between antenatal depression and LBW, whereas the results from high income countries have been more mixed (Andersson, Sundstrom-Poromaa et al. 2004; Suri, Altshuler et al. 2007), suggesting that the association may only be apparent under certain contextual circumstances. Another possible explanation is that depression is a marker for another, yet undefined, variable present in only certain populations (Dayan, Creveuil et al. 2006). Thus, there is need for further research on these associations in various contexts. .

1.2.4 Treatment and prevention

Unfortunately treatment of perinatal depression is often severely delayed, partly because feelings of shame and fears of stigma and being separated from the baby prevent mothers from seeking help (reviewed in Misri and Joe 2008). While women are more affected by depression than men, in low income countries effective care may be available to only 5% of those women (Patel, Rahman et al. 2004). In Vietnam, primary care physicians are inadequately equipped to recognise and treat depression, and its treatment has been found to be unheard-of at health care clinics (Nguyen, Hunt et al. 2005). Culturally, Vietnamese often do not discuss their negative moods or emotions with others, thus causing depression to often go unnoticed and untreated (Nguyen, Hunt et al. 2005). The routine screening of perinatal depression is important, since depressed mothers are unlikely to tell their doctors unless directly asked (Heneghan, Mercer et al. 2004). This can be done either through a clinical interview or through using a screening instrument such as the EPDS, the Beck Depression Inventory, or the Hamilton Depression Scale (reviewed in Chase-Brand 2008).

1.2.4.1 Pharmacotherapy

While the first line treatment for major depression is usually anti-depressant medication, many pregnant and breast-feeding women are reluctant to take such medications due to concerns for effects on the baby (Dimidjian and Goodman 2009). In Vietnam, already in 2000 most essential medications could be found in most parts of the country but were costly and mainly paid out-of-pocket (Falkenberg, Nguyen et al. 2000). Thus the development and provision of locally adapted non-pharmacologic interventions for antenatal depression are called-for in Vietnam, as they may incur a lower cost. Yet, an approach to mental health management that focuses solely on individual pathology will fail to address the prevalent social causes of depression (Astbury and Cabral 2000). Since a number of studies have implicated a wider social causation model for depression in women, a cross-sectoral approach depression management is recommended (Astbury and Cabral 2000).

1.2.4.2 Psychological interventions

A recent meta-analysis of non-pharmacological interventions for perinatal depression found that the approaches with the best outcomes included Cognitive Behavioral Therapy (CBT) and Interpersonal Therapy (IPT) (Dimidjian and Goodman 2009). A

scarcity of studies on interventions in the antenatal period has been noted, and was even more apparent in a low income setting (Dimidjian and Goodman 2009). However, the Vietnamese setting is characterized by a large shortage of trained mental health professionals, and thus any intervention should preferably not be dependent of staff with long psychological training such as CBT and IPT. Thus, studies performed in low resource settings are of greater relevance for the present thesis. A study in Uganda has shown group IPT to be effective in treating depression (Bolton, Bass et al. 2003), and a stepped care model for depression treatment in India, which incorporated principles of IPT has recently proven effective (Patel, Weiss et al. 2010). Stepped care models have accumulated an evidence-base for treating depression in low resource settings (Araya, Rojas et al. 2003; Patel, Weiss et al. 2010). These programs consist of three components including psychoeducational group meetings, monitoring of clinical progress and a structured pharmacotherapy program for those with severe depression (Araya, Rojas et al. 2003; Patel, Weiss et al. 2010). The model can be led by a non-medical health worker (Araya, Rojas et al. 2003). Topics covered in the psychoeducation may include information on symptoms and causes of depression, available treatment options, scheduling positive activities, problem-solving techniques, and basic cognitive and relapse-prevention techniques (Araya, Rojas et al. 2003). Also, information may be provided on the association of depression with interpersonal difficulties, and the need to share emotional symptoms with the doctor and to share personal difficulties with family members caring for them or other key people in their social network (Patel, Weiss et al. 2010). Among mothers with attachment and bonding disorders, a trial in South Africa (Cooper, Landman et al. 2002) where one group received 20 visits by community workers and the control group received routine care, showed that those given additional care had better mother-infant interaction and the children gained more height and weight.

1.2.4.3 Identified gaps in knowledge

According to Glover and co-workers, studies to evaluate the efficacy of interventions during pregnancy, focusing on mental illness, social support and help with partner relationships should be a priority in public health research (Glover, Bergman et al. 2008). However, others have pointed to a striking lack of correlation between the effects of certain therapies on the psychological measures and on biological measures such as heart rate, plasma catecholamines, cortisol and uterine artery blood flow during pregnancy (Teixeira, Martin et al. 2005). Thus, in order to reduce the physiological effects of the mother's psychological distress on the fetus, different approaches than those effective in ameliorating subjective mental distress may be needed. Treatment should be directed not only at the psychological vulnerability, but also at the biological and psychosocial stressors (Misri and Joe 2008).

1.3 VIETNAM – THE SETTING

1.3.1 Demography, economy and religion

Vietnam has a population of 84 million inhabitants, and is the second most densely populated country in South-East Asia. Seventy three percent of the population lives in rural areas and the population growth is 1.21% per annum. The average income per capita is 750 USD, the maternal mortality rate is 130/100 000 live births, the gross domestic product is 638 USD per capita (UNDP 2008) and the poverty rate was 16% in



2006 (WB 2008). Vietnam was a low income group country based on World Bank 2004 criteria, (WB 2008), but due to extensive reforms in the past two decades has become a lower-middle-income country in 2009 (WB 2010). Poverty remains much higher among ethnic minorities than among the Kinh and Chinese majority; constituting 14% of the population, ethnic minorities constitute 44% of the poor (WB 2008). The country's capital is Hanoi in the north, and the largest city is Ho Chi Minh City in the south and the pace of rural-urban migration is rapid (WB 2008). Lower fertility and improvements in healthcare are increasing life expectancy, and the resulting epidemiological transition from infectious diseases to non-communicable diseases will require a fundamental transformation in healthcare (WB 2008). At the turn

of the millennium, half of the Vietnamese population was under 25 years of age, but with declining fertility and increased longevity, the Vietnamese population is ageing rapidly (WB 2008).

When the war against the USA ended in 1975, the North and the South of Vietnam were reunited under a socialist government. At the party congress in 1986, the Vietnamese government agreed to abandon its centrally-planned economic model, and replace it by a system based on voluntary exchanges between independent producers and consumers. This economic renovation - Doi Moi - has focused on the containment of economic reform within the existing, communist-led political system (Pettus 2003). Later, between 1988 and 1990, the government opened the door to direct foreign investment, thus incorporating the country into the global market economy (Pettus 2003). Under state socialism, the government took care of almost everything. Now the market “takes care” of most medical needs, some parts of education, and sets the price for basic food commodities (Sen and Stevens 1998).

Confucianism, Taoism and Buddhism have coexisted in Vietnam for a number of centuries, forming a so-called “triple religion” (Anh 1998). These three religions pervade all of Vietnamese life, where Confucianism provides the moral structure and norms for human relations, Taoism defines the relation between humans and the universe and nature at large and Buddhism gives foundations for the understanding of compassion and afterlife (Johansson 1998).

1.3.2 The mental health system

According to the WHO Mental Health Atlas (2011), whereby information was gathered through a survey to WHO member states and thus covers 98% of the world population, there is a lack of commitment to mental health issues in many countries. For example, 30% of countries in South-East Asia have no mental health policy, though in 57% of those countries the policy has been updated since 2005 (WHO 2011). In South East Asia, the rate of mental health care outpatient services per 100 000 population is 0.32 compared to the 0.61 world median. Large tertiary institutions are still the main means of care (WHO 2011). Only 25% of mental health facilities in South-East Asia provide psychosocial interventions (WHO 2011). In Vietnam, the formal as well as the ancient traditional health-care systems are important elements in people’s choice of health-care and various public/private traditional medicine providers can be found. By 2004, there were no health promotion or illness prevention strategies, and no community-based or primary care policies addressing mental health in Vietnam (Harpham and Tuan 2006). However, the government developed a 5-year national plan of action for 2006-2010, which incorporated mental health issues, and proposed to screen pregnant women and children for mental illness (Harpham and Tuan 2006). National and international Non-Governmental Organizations (NGOs), multilateral organizations, and international universities have provided regular support for mental health issues in Vietnam (Harpham and Tuan 2006), but there is little published scientific evidence about the extent and nature of mental health problems in the country (Harpham and Tuan 2006). In 2004, there were 0.32 psychiatrists per 100 000 population, 0.03 neurosurgeons, 0.3 psychiatric nurses and 0.13 neurologists (WHO 2005). Other human resources for mental health include 0.03 psychologists per 100 000 population and approximately 125 social workers in total (WHO 2005).

1.3.3 Women and the family

Traditional multi-generational households are dominant in the rural regions of Vietnam, but are becoming less so with increased urban migration, which also has consequences including increased unemployment and loss of social networks (WB 2008). Unlike for many other countries, the fraction of the economically active in Vietnam is the same for women as for men, but women are more likely to be in the lowest wage group (WB 2008). Vietnam is among the relatively few countries that has institutionalized gender equity at the macro, meso and micro levels (Schuler, Anh et al. 2006) and under Doi Moi the Women’s Union has become one of the nation’s chief institutions (Werner 2008). The Union acts as a grassroot administrator of government policies that aim to regulate the health, productivity and moral behavior of families, as well as ensuring “family happiness” (Pettus 2003). It is one of the oldest and largest national organizations of women in the world (see Schuler, Anh et al. 2006), with a membership which comprises over 13 million (VWU 2011). Especially in rural regions, most

women attend women's union meetings. The Union activities include organizing clubs for new mothers that teach infant care, solutions to marital conflicts and women's legal rights (Pettus 2003). At the same time, for the propagation of the ideal of "family happiness", and the importance of strengthening of the woman's role as domestic caregiver and moral manager has been emphasized by the Union. To date, equality between women and men in Vietnam has not quite been achieved. Indeed, the current era of market economy has been described to increase inequities, as women have been relocated predominantly in the domestic sphere (Fahey 2002). Many women who were employed in the public sector became unemployed after Doi Moi or went back to farming (Werner 2008), and Doi Moi has clearly affected the structure of employment and occupational segregation by gender. Men have gravitated toward waged work while women have been leaving waged work. The impact of the market has pulled men into the non-agricultural sector, leaving women behind to tend the fields. Villages are thus being de-populated by men, leaving women behind as heads of household (Werner 2008).

Post-marital patrilocal residence dominates in Vietnam (Rydström 2010), thus rendering conflict between a woman and her mother-in-law a widespread issue in Vietnamese women's lives (Drummond and Rydstrom 2004). These relationships have been described as increasingly problematic in the age of globalization. Many young women are caught in between the post-war values of socialist gender equality and women's rights to work outside the house, and the older values held by their mother-in-laws of the four Confucian virtues of women (Drummond and Rydstrom 2004). These values have again come into fashion since Doi Moi and include codes of domesticity which have disallowed any legitimate female identity outside the domestic sphere (Pettus 2003; Werner 2008). These virtues have been officially propagated by the government through public campaigns as the 'ideal feminine virtues' and include diligence (*cong*), physical grace (*dung*), polite speech (*ngon*) and chastity (*hanh*). The government-propagated "new family" combines the traditional values of filial piety, maternal devotion and marital faithfulness with new standards of proper nutrition, hygiene, economic discipline, birth control, marital "democracy" and good parenting (Pettus 2003). Women are confronted by these expectations and social rules through state billboards and loudspeakers, newspapers and television (Pettus 2003; Werner 2008).

In Vietnam, sons are honored more than daughters as family organization revolves around the patrilineage and descent is traced patrilineally. Therefore, it is seen as the wife's duty to reproduce the patrilineage of her husband, thus honoring it (Werner 2008; Rydström 2010). Especially in rural areas son preference is strong, and there is indication that male to female sex ratios may be on the rise in certain provinces (Belanger 2002). Since the government established a National Committee of Population Control and Family Planning in 1984, the Women's Union has worked to spread knowledge of birth control and to persuade couples to follow the "one to two child" policy, though it has been less followed in rural regions and penalties for non-compliance have been minimal (Pettus 2003).

1.4 THEORETICAL FRAMEWORKS

1.4.1 Cross-cultural psychiatry

Cross-cultural psychiatry is concerned with the cultural context of mental illness and mental health services. It includes thus the study of prevalence and form of disorders in various cultural contexts as well as the study of psychiatry as a cultural product (Helman 2007). An important consideration in conducting cross-cultural research are the two opposing forms of perspective one can take, termed *emic* and *etic*. The *emic* perspective provides an understanding of behavior or a phenomenon in terms meaningful within the culture. An *etic* perspective is based on analysis of behavior or a phenomenon by an external observer, in terms that can be applied to a variety of cultures and attempt to be culturally neutral (Patton 2002). Depression is diagnosable world-wide (*etic* perspective) (Kleinman 1986), but Byron Good (1992) and Vikram Patel (2001) have discussed that the symptomatic presentation of depression varies from culture to culture (*emic* perspective), though it is in all cultures associated with somatic symptoms and a chronic duration (Patel 2001). In addition, the ‘new cross-cultural psychiatry’ takes a stand where the *emic* and *etic* approaches are combined. Thereby, local idioms and conceptualisations of distress (*emic*) are formed into illness categories that can subsequently be examined on a larger scale (e.g. through epidemiology) in that culture (Littlewood 1990). The presentation above of perinatal depression in Vietnam and globally (sections 1.2.1 and 1.2.2) encompasses thus an *etic* perspective. An *emic* perspective of depression/perinatal depression, and a combination of the two are given below.

1.4.1.1 *Emic perspective*

Cultural understandings of depression have been found to influence the way in which patients with chronic depression in different parts of the world respond to treatment (Kleinman 1991). Chinese patients with depression have been found to continue depression care-seeking after being given antidepressant medication to which they responded only partially. This care-seeking ended only when the underlying major work and family problems had been resolved (Kleinman 1986). Thus an understanding of patient and provider illness explanatory models can be helpful for the planning of locally acceptable treatment interventions. Illness explanatory models (EMs) are “the notions about an episode of sickness and its treatment that are employed by all those engaged in the clinical process” (Kleinman 1980). By studying practitioner EMs, one can learn how they understand and treat sickness. By studying the EMs of patients and families, one can learn how they make sense of given episodes of illness, how they give it personal and social meaning, and how they choose and evaluate particular treatments. Thus, the study of EMs gives an important understanding of how cultural and social structures will affect the patient-practitioner relationship, as well as the care-seeking behavior of patients. EMs can be divided into four specific components which include: 1) What causes the illness? 2) What is the illness like? 3) What should be done to address the illness? 4) How will the illness turn out? (Kleinman 1980).

Non-Euro-American healing systems often do not have individuation (i.e. the development towards ones ‘true self’) or personal growth as explicit treatment goals, illustrating the radical differences between individualistic Euro-American culture and

the socio-centric nature of many other cultures of the world (Kleinman 1986). Many psychotherapies developed within Euro-American culture demand the ability and willingness of the patient to converse about private experiences and to be out-spoken about feelings and relationships, in order to find a ‘true self’ (Kirmayer 2007). Therefore, people who more fully express their ‘true self’ in terms of taste and feeling are seen as more ‘real people’. However, traditional Confucian culture is sociocentric, where relationships with others are included in the definition of the person (Tu 1985), and the self is primarily expressed through commitment to family or some other social group (Kirmayer 2007). Thus, helping a person from this cultural background to see herself as an individual caught in oppositions to the will of others could mainly cause her to become alienated from her own family (Kirmayer 2007). Such fundamental values that patients hold must be taken into account in order for any psychotherapy to be effective. For example ‘quiet therapies’ developed in Japan emphasize the acceptance of things as they are and capacity to adjust to one’s life circumstances instead of aiming to change them to suit one’s own needs (Reynolds 1980).

In Vietnam, Confucianism, Buddhism and Taoism have carried major impacts in creating a holistic thinking where clear distinctions between physical and psychological symptoms are not made (Phan and Silvoe 1999). Phan and Silvoe (1999) have discussed that the Cartesian mind/body dualistic fashion of thinking that underlies Western psychiatric nosology does thus not necessarily coincide with this holistic view. The persistence of a traditional model of health, illness and the body among lay people has been described as the perhaps most salient fact in Vietnamese medical history (Craig 2002). The Vietnamese are found to often seek care from traditional approaches for mental illness, including Traditional Vietnamese Medicine (TVM), Traditional Chinese Medicine (TCM), witchcraft, spiritual blessing and sorcery (Phan and Silvoe 1999). This array of treatments reflects the underlying notion of illness, including the holistic concept of mind and body, and the importance of the individuals relationship to the immediate environment as well as the cosmos (Phan and Silvoe 1999). TVM has evolved together with TCM for thousands of years (Thai 2003). Though TCM and TVM differ in practice, they share the same theoretical foundation, the cornerstones of which are the effects of Qi (energy/vital force). Qi can be depleted by strenuous work, poor diet and lifestyle, and harvested through maintaining optimal health and by practicing some forms of breathing exercise like Qi Gong. The main theories within TVM are Yin and Yang, Five Elements, 12 Organs, and 14 regular meridians (Thai 2003).

1.4.1.2 Emic combined with etic perspective

Depression as an emotion is described in the Vietnamese literature (Phan and Silvoe 1999), but due to the distinctive symptomatic expression of depression, Phan and co-workers (2004) have deemed it necessary to develop a Vietnamese psychiatric scale, the Phan Vietnamese psychiatric scale. This scale assesses multiple dimensions of psychological distress, including depression, anxiety and somatisation. Non-western health beliefs, such as undifferentiated reference to affective and physical symptoms (e.g. “felt doleful [downhearted], pale, or had dark ring around [dark bags under] the eyes), and the powerful influence of cosmological beliefs (e.g. “lost hope in fate”) can be found in some of the scale items (Phan, Steel et al. 2004).

1.4.2 Psychological approaches derived from Buddhism

The influence of Buddhism on Vietnamese culture is vast, and it is the Pure Land sect of Mahayana Buddhism that is practiced by the vast majority. This form of Buddhism does not focus on meditation practice, but rather on ritual practices such as prayer and almsgiving (Taylor 2007). However, in the recent years, also Zen Buddhism that emphasizes the importance of meditation practices has become more widespread, and meditation halls where lay people go to practice mindfulness meditation have begun to open in conjunction with much visited pagodas (Chapman 2007). Meditation is also a practice inherent to the prominent TVM, which is approved by the Ministry of Health in Vietnam (Craig 2002). With regard to the strong Buddhist influences on Vietnamese culture, and the importance of any psychological interventions being culturally sensitive, psychological interventions derived from Buddhism may be suitable for the Vietnamese context.

“Mindfulness means paying attention in a particular way; On purpose, in the present moment, and nonjudgmentally” (Kabat-Zinn 1991) and is the skill developed through mindfulness meditation. It has roots within Theravada Buddhism, where it is known as insight meditation, in Mahayana Buddhism, in Soto Zen practices, and in the Yogic traditions (see Kabat-Zinn, Lipworth et al. 1985) and the concept has provided useful lessons for Western psychiatry. As taught in Mindfulness Based Cognitive Therapy (MBCT) (Segal, Williams et al. 2001), mindfulness has been found in clinical trials in Great Britain and Canada to effectively prevent depression relapse (Teasdale, Segal et al. 2000; Ma and Teasdale 2004) to an extent that is at least as effective as antidepressant medication (Kuyken, Byford et al. 2008). MBCT belongs to a larger family of mindfulness based interventions, all of which originate from Mindfulness Based Stress Reduction (MBSR) (Kabat-Zinn 1991), and have been shown to reduce the impact of stress, improve psychological well-being, increase positive affect, and alleviate anxiety in a number of clinical studies reviewed (Fjorback, Arendt et al. 2011). Both MBCT and MBSR are delivered in a group setting, with 8 weekly sessions and assigned home-work practice. MBCT for depression prevention is beneficial to the extent that it has been included in the UK National Institute of Clinical Excellence clinical practice guidelines for the management of depression in primary and secondary care (NICE 2005). In addition, a recent pilot study showed promising results of Mindfulness Based Childbirth and Parenting (MBCP) for preventing antenatal depression and anxiety (Duncan and Bardacke 2010). This method also has roots in MBSR, and is in essence the same program but with specific modifications made for target-group of parents-to-be (Duncan and Bardacke 2010). Also with regard to the lack of physiological effects of psychotherapies often used for perinatal depression, mindfulness based interventions seem promising. Studies on mindfulness have shown also physiological responses in addition to the self-reported effects. Physiological effects have been documented on immune function (Davidson, Kabat-Zinn et al. 2003) as well as at the level of expression of certain genes associated with the relaxation response (Dusek, Otu et al. 2008).

2 AIMS

2.1 OVERALL AIM

The overall aim of this thesis is to improve knowledge and understanding about perinatal depression to contribute to evidence based development of prevention and treatment strategies in Vietnam.

This aim is reached through a mixed-methods approach with qualitative and quantitative studies as well as a situation analysis. Thus, the aim is to map the strengths and weaknesses of the mental health system and subsequently to analyze important contributing factors and consequences that should be considered in a treatment strategy for perinatal depression.

2.2 SPECIFIC AIMS

A) To generate a systematic, integrated report of the mental health priorities in Vietnam, using the Mental Health Country Profile template (Study I).

B) To elicit illness explanatory models of depression and postnatal depression from mothers and health workers who meet mothers during their pregnancy and/or postpartum period (Study II).

C) To provide information for the contextual adaptation of a prevention intervention for antenatal depression for use in a semi-rural context in Vietnam, through data gathered from women and health-workers from the local community (Study III).

D) To examine the association of low birth weight and preterm birth with antenatal depression during the third trimester of pregnancy in a semi-rural area in Vietnam (Study IV).

3 METHODS

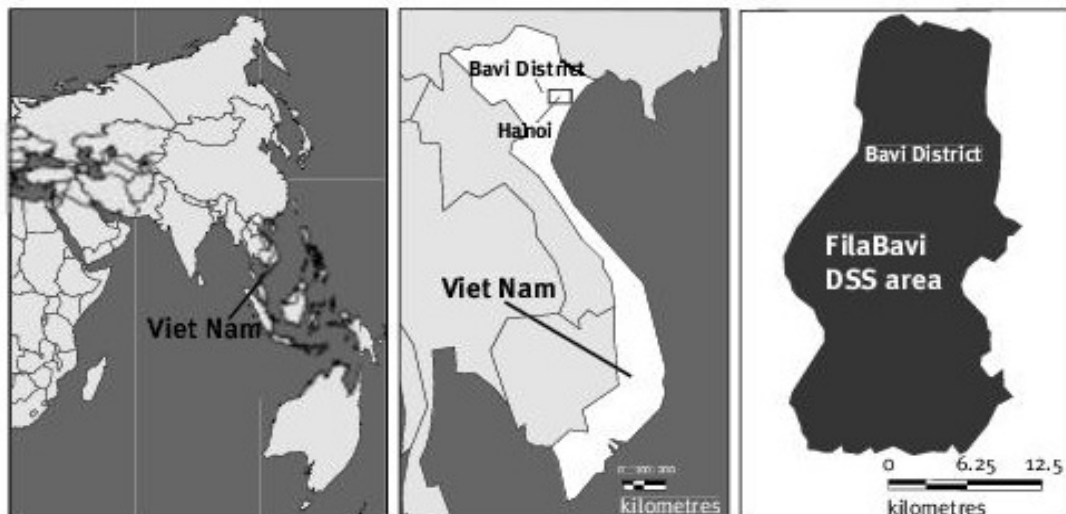
3.1 STUDY SETTINGS

Study I was conducted in the Hanoi area, since most of the head offices of governmental, bilateral and nongovernmental institutions are located there. All interviews for study I were conducted at the workplaces of the informants.

Studies II, III and IV were conducted within Fila Bavi, in the Ba Vi district of the Hanoi province (former Ha Tay province), which is a semi-rural area in the Red River Delta region of north Vietnam. The district is 60 km west of Hanoi and covers 410 km² of lowland, highland and mountainous areas. Fila Bavi is a demographic surveillance system (DSS) with 51 024 inhabitants (approximately 20% of the population in the area) in 11 089 households from 67 clusters, selected randomly from the total of 352 clusters in the area. A cluster is defined as an administrative unit which is usually the size of a village, though some larger villages have been divided into two or more clusters. On average there are about 600-700 inhabitants per cluster.

Fila Bavi has been funded by the Swedish International Development Agency (Sida) since 1997 (Chuc and Diwan 2003). The overall aim of Fila Bavi has been to generate basic health data to supply information for health planning and policy making, serve as a background and sampling frame for specific studies, and provide a setting for epidemiology and public health training of master and doctoral students (Chuc and Diwan 2003).

Figure 1: Map of Fila Bavi, in Bavi District, Hanoi Province, Vietnam (From: Long, Do et al. 2002)



Fila Bavi was created by the Health Systems Research Project, which is a collaboration between Hanoi Medical University (Hanoi), Vietnam Ministry of Health, the Health Strategy and Policy Institute (Vietnam), Karolinska Institutet (Stockholm), Umeå University (Umeå) and the Nordic School of Public Health (Gothenburg) (Chuc and Diwan 2003). The field site was designed to be representative of the population in the district, and data are collected through tri-monthly household surveys and a baseline survey every two years, since 1999. During the tri-monthly follow-up questions are

posed concerning occupation, migration, health status, disease, health service access, pregnancy, births, deaths and changes in marital status. The base-line survey covers sociodemographic factors such as household income, religious affiliation, number of family members, education etc. Survey data is collected by 35 surveyors who are each in charge of approximately 300-400 households. All surveyors have at least completed secondary school, live in the area and are regularly trained and supervised by supervisors. Supervisors are responsible for 7 surveyors each, have some form of medical background such as assistant doctors or nurses, and re-interview 10 % of the subjects for quality assurance (Chuc and Diwan 2003). The Ba Vi district contains both peri-urban and rural areas with a population of 240 000 people. Agricultural production and livestock breeding make up 81 per cent of the area's economic activities. The average yearly income per capita in the district is approximately 300 USD (FilaBavi annual report 2005). Fila Bavi is run from the community health center in Ba Vi. The health center is at most 15 kilometers away from district households, and this is where the qualitative individual interviews (studies II and III) were conducted. Focus group discussions (FGDs) (Study III) were conducted at the local village health center and at the home of a woman who participated in the FGDs. For study IV, data was collected at informants' homes.

3.2 STUDY DESIGN AND DATA COLLECTION

Both qualitative and quantitative study designs were used in this thesis work. The study design, study populations and data collection methods are summarized in Table 1.

Table 1: Study designs, populations and data collection methods

Study title and design	Study population	Data collection method
<i>Study I:</i> Mental health priorities in Vietnam: a mixed-methods analysis (Qualitative mixed methods)	<ul style="list-style-type: none"> Ten key national stakeholders in mental health, identified through snowball sampling Seventeen documents and transcripts (grey literature) 	Individual semi-structured interviews and documents, collected according to the mental health policy template
<i>Study II:</i> The social contexts of depression during motherhood: a study of explanatory models in Vietnam (Qualitative)	<ul style="list-style-type: none"> Nine mothers, recruited through Fila Bavi Nine health workers who meet mothers during the pregnancy/postpartum period, recruited from community health centers and district hospital 	Individual semi-structured interviews collected according to the illness explanatory model framework, using a case vignette as the basis of questioning
<i>Study III:</i> The contextual adaptation of a mindfulness intervention – a qualitative study in a semi-rural district of Vietnam (Qualitative)	<ul style="list-style-type: none"> Nine women who obtained high scores in a depression self-report measure during pregnancy Twelve health workers from the local community health stations Sixteen elderly women from the local community 	Individual semi-structured interviews with high score women. FGDs with health workers and elderly women using a case vignette as the basis of questioning
<i>Study IV:</i> Antenatal depression and perinatal outcomes: a prospective cohort study in a semi-rural district of Vietnam (Quantitative)	<ul style="list-style-type: none"> A cohort consisting of pregnant women (n = 355) in their third trimester 	Edinburgh Depression Scale (EDS) questionnaire delivered in an interview format by Fila Bavi surveyors

3.2.1 Qualitative data gathering

3.2.1.1 *Study I: Mental health policy template*

The Mental Health Country Profile is a tool for formative evaluation of the mental health situation in a country, and was generated by the International Mental Health Policy and Services Project to inform key stakeholders about important issues which need to be considered in mental health policy development (Jenkins, Gulbinat et al. 2004). In study I we used snowball sampling (Creswell 1998; Buse, Mays et al. 2005) to identify informants, and data gathering was performed through semi-structured interviews and collection of reports and documents. We used the mental health policy template (Townsend, Whiteford et al. 2004) (Table 2) as a basis for questioning. The interview questions were shaped along the template domains and elements, where first

open-ended questions were posed, and emerging issues were clarified with follow-up questions.

Table 2: Mental health policy template

Domains	Elements
Context	<i>Societal organization and culture</i> <i>Public policy</i> <i>Governance</i> <i>Population need and demand</i>
Resources	<i>Financing</i> <i>Human resources</i> <i>Physical capital</i> <i>Consumables</i> <i>Social capital</i>
Provision	<i>Personal mental health services</i> <i>Population-based mental health services</i> <i>Intersectoral linkages</i>
Outcomes	<i>Health outcomes</i> <i>Service outcomes</i> <i>Economic outcomes</i> <i>Social outcomes</i>

Initially interviews were conducted by the thesis author with the Ministry of Health (MoH), WHO, the National Institute of Mental Health (NIMH) representatives, and the director of the Traditional Medicine Institute. These sectors were deemed relevant primary actors in mental health, as they were the main sectors consulted in the original development of the Mental Health Country Profile methodology (Jenkins, Gulbinat et al. 2004). At the end of these interviews, informants were asked to recommend further informants. When additional informants were recommended, they were immediately contacted for interview. When documents were mentioned by the interviewees, copies of these were requested. Thus any officially published documents or presentations that were mentioned by the interviewees as relevant to the research question were included in the analysis. These documents formed additional material, which complemented what had been said during the interviews.

Table 3: Interviews conducted, study I

Institution/organisation*	Date
National Institute of Mental Health (NIMH)	Interview 09. 05. 2007
International Organisation of Migration (IOM, inter-governmental organization)	Interview 24. 05. 2007
World Health Organisation (WHO)	Interviews 24. 05. 2007 and 26. 02. 2008 (same person)
Ministry of Health, Non-communicable disease program (MoH)	Interview 18. 05. 2007
Therapy centre, Hanoi (private initiative)	Interview 28. 05. 2008
Atlantic Philanthropies (non-governmental organization)	Interview 24. 05. 2007
National central mental hospital	Interview 04. 06. 2007
Traditional Medicine Institute	Interview 04. 06. 2007
Research and Training Centre for Community Development (RTCCD, non-governmental organization)	Interview 05. 06. 2007
Ministry of Labour, Invalid, and Social Affairs (MOLISA)	Interview 28.09.2009

*) Interviews were generally conducted with leading representatives of the institutions/organisations.

Seven interviews were conducted in English and three were conducted in Vietnamese. Written consent was obtained from all interviewees beforehand and the length of the interviews varied between 45 minutes and two hours. At the English language interviews notes were taken, and these were transcribed and clarified later the same day. The Vietnamese language interviews were tape recorded, transcribed verbatim, and translated to English.

Table 4: Documents collected, study I

<i>Document</i>	<i>Publisher</i>
1. UN Youth Theme group, activities map 2006-2007	IOM
2. Ly Ngoc Kinh, and Vuong Anh Duong (2005) WHO-AIMS findings	WHO
3. T. V. Cuong (2002) Morbidity rate of mental diseases – results from a survey of 67,380 people in 8 geographical areas	Central Mental Hospital
4. Information sheet	IOM
5. Harpham T, Tuan T (2006) From research evidence to policy: mental health care in Viet Nam.	Bulletin of the World Health Organization, vol.84 (8), pp: 1-5
6. L. D. Truong, WHO support for mental health care of Vietnam.	WHO
7. (2007) Diagnosis, treatment, care and management guidelines for patients with mental disorders in the community	MoH Community-based mental health project in collaboration with WHO.
8. Summary report of meetings, field visits and workshop on Community-based mental health care held in Viet Nam on 25-26 June 2006	IOM
9. T. V. Cuong (2004) report of the prevention and treatment of epilepsy and depression program.	Central Mental Hospital
10. Information leaflet	Department of psychology and education
11. (2007) Project: establishing the national integrated non-communicable diseases surveillance system (ndss) in Vietnam	MoH, prevention and control of non-communicable diseases program
12. H. Ngoc (2004) wandering through Vietnamese culture	The Gioi Publishers
13. T Tuan, L T Bui, N T Trang. Evaluation of the community mental health project Cost-Benefit Analysis of Community-Based Mental Health Care Model A report to WHO Hanoi, March 2008	RTCCD
14. Mental Health Atlas 2005	WHO
15. Vietnam Development Report 2008 : Joint Donor Report to the Consultative Group Meeting	Hanoi: World bank
16. T Tuan, J Fisher, Meena Cabral de Mello et al. (2005) Report of Workshop on Primary mental health care for mothers and children in Vietnam. Hanoi, June 6 - 10 , 2005	RTCCD
17. Harry Minas (2009). Reform of the MOLISA Centres for persons with severe mental disorders. Mission report to WHO & MOLISA, November 2009	MOLISA – WHO Hanoi

3.2.1.2 Study II: Individual semi-structured interviews

Semi-structured interviews for study II were conducted with nine mothers and nine health workers who meet mothers during the pregnancy/postpartum period. The mothers were chosen with regard to variation in age and occupation from the list of field laboratory households. The health workers were chosen from those medical specialties that meet mothers during pregnancy and/or the postpartum period. Participants were given information about the study and asked for verbal consent before inclusion in the study. They signed the consent form after the completed interview and were compensated for time away from income-generating work with 150 000 Viet Nam Dong (= 8.42 USD).

The semi-structured interview schedule for study II was designed in accordance with the four main categories that consist Kleinman's illness explanatory model framework (Kleinman 1980). The interviewees were informed that the interviews regarded the women's situation in their community, but it was not mentioned that the interview topic involved mental health, in order not to influence the answers in this direction. The interviews were initiated by reading a case vignette (Box 1) (Torres 2006), which described depression in accordance with the DSM-IV criteria for major depressive disorder (Frances 1994), and questions were posed with regard to the vignette. The DSM-IV diagnostic criteria for major depressive disorder with postpartum onset are the same as those for major depression, apart from the time of onset (Frances 1994). Thus, the same vignette was used to illustrate a case of postnatal depression and the same questions were posed again with regard to postnatal onset.

Box 2: Case vignette, depression

For a few months, a 30-year-old woman has been looking very sad, miserable and unable to look after her home and children, and is slow in speech and movements. She says that life is not worth living. Nothing seems capable of cheering her up. She complains of often waking up in the middle of the night and not being able to get back to sleep. Already in the morning she feels exhausted and without energy. Once she even tried to take her own life.

Interviews were conducted at the district hospital in a meeting room, and tape recorded after permission from the interviewee. The interviews were conducted in Vietnamese and varied in length between 20 and 70 minutes. Present at interviews were the interviewee, the interviewer, a research assistant bilingual in English and Vietnamese and the author of this thesis. Interviews were transcribed verbatim and translated to English by the bilingual research assistant.

Table 5: Description of interviewees in study II

<i>Mothers</i>	<i>Age</i>	<i>Children (Age)</i>	<i>employment</i>	<i>education (years)</i>	<i>Health workers</i>	<i>Age</i>	<i>Employment</i>
Mean	34			8.6		44	
Range	23-54					36-51	
Mother 1		19 months	Farmer		HW 1 (woman)		Midwife
Mother 2		6 and 15 years	Farmer		HW 2 (woman)		Midwife
Mother 3		2 children (age ?)	Farmer		HW 3 (woman)		Midwife
Mother 4		1 and 9 years	Farmer		HW 4 (woman)		Midwife
Mother 5		3 adults (age ?)	Farmer		HW 5 (woman)		Doctor
Mother 6		3 years	Farmer		HW 6 (woman)		Doctor
Mother 7		4 adults (age ?)	Farmer		HW 7 (woman)		Doctor
Mother 8		4 and 8 years	Other		HW 8 (woman)		Assistant doctor
Mother 9		6 and 9 years	Other		HW 9 (woman)		Assistant doctor

3.2.1.3 Study III: Individual interviews and Focus Group Discussions

Study III interview participants included nine women who obtained high scores in the EDS (Cox, Holden et al. 1987), and were thus possibly depressed during pregnancy. All interviewees were recruited through the Ba Vi field laboratory, participants were chosen to have a variation in age, and from among those who lived closest to the district hospital where interviews were conducted. Participants were given information about the study and asked for verbal consent before inclusion in the study. They signed the consent form after the completed interview and were compensated for time away from income-generating work with 150 000 Viet Nam Dong (= 8.42 USD).

In study III we gathered information about the experience of antenatal depression in order to guide the planning of an intervention to meet the needs of those afflicted. Thus, the interviews concerned the women's experience of antenatal depression and were open-ended. The interviews were initiated with probing about the women's pregnancy period, and discussion about negative experiences was elicited through mentioning their high scores obtained on the EDS and asking about the reasons for a high score.

Interviews were conducted at the district hospital in a meeting room, and tape recorded after permission from the interviewee. The interviews were conducted in Vietnamese and varied in length between 40 and 70 minutes. Present at interviews were the interviewee, interviewer and the author of this thesis. Interviews were transcribed verbatim and translated to English by a bilingual research assistant.

Twelve health workers from the local community health stations and sixteen elderly women from the local community were included in four FGDs for study III. We chose

FGDs instead of individual interviews as the data gathering method in this part of the study. This is because we aimed to elicit a consensus-based understanding of how an intervention should be adapted to the local community. FGDs are useful for this purpose as they tend to balance participant views on each other (Patton 2002). In the focus groups we paid particular attention to the group make-up though aiming to make sure that the health workers in each group were of similar education level and position and that the elderly women were of approximately the same age. This was because previous literature (Craig 2002) has emphasized the importance of taking into account hierarchical structures when organizing group discussions in Vietnam. Thus, the first FGD consisted mainly of community health care staff, and the second of midwives and nurses.

The FGDs addressed the perceived causes for antenatal depression and how it should be managed. The FGDs were initiated by reading a case vignette (Box 3) (Torres 2006), which described depression based on DSM-IV criteria for major depressive disorder with antepartum onset (Frances 1994). This case vignette was similar to that used in study II, but through lessons learnt in that study, we modified the case vignette for the local context in accordance with the symptoms of the Phan Vietnamese Psychiatric Scale (Phan, Steel et al. 2004). Subsequent interview questions were posed with regard to the vignette.

Box 3: Case vignette, antenatal depression

A 30-year-old woman is pregnant, and for some weeks she has seemed very sad, absent minded, and is slow in speech and movements. She is pale and has dark rings under her eyes. She says that life is not worth living and has lost hope in fate. Nothing seems capable of cheering her up. She complains of often waking up in the middle of the night and not being able to get back to sleep. Already in the morning she feels exhausted and without energy. Once she even tried to take her own life.

We presented two five-minute mindfulness exercises to study participants and provided background information about the uses of mindfulness in medical care. Thus, participants were asked to participate in the mindfulness exercises in order to gain a first-hand experience of what mindfulness entails. After this, we discussed the feasibility of a mindfulness based intervention for antenatal depression prevention in the local context and how it should be modified in order to suit the circumstances of their community.

The FGDs were tape recorded, written and verbal information about the study was provided before the FGD and participants were asked for verbal consent. The consent forms were signed by the FGD participants after the end of the discussion as this is customary in the Fila Bavi research setting. They were compensated for time away from income-generating work with 150 000 Viet Nam Dong (= 8.42 USD). The recordings were transcribed verbatim and translated into English by two bilingual

Vietnamese research assistants, one of which did the initial translation and the other who checked all the translations.

Table 6: Description of participants at interviews and FGDs, study III

Participants at individual interviews (N=9)	Health workers at FGD 1	Health workers at FGD 2	Elderly women at FGD 3 and 4
<i>Age range:</i> 22-37	<i>Age range:</i> 29-55	<i>Age range:</i> 22-38 (2 not known)	<i>Age range:</i> 45-59
<i>Occupation:</i> 7 farmers, 2 other (kindergarten staff and tailor)	<i>Occupation:</i> 5 village health workers, 1 military medical secondary education	<i>Occupation:</i> 1 director of health centre, 2 general physicians, 1 traditional medicine doctor, 2 obstetricians	<i>Occupation:</i> 15 farmers, 1 commune Women's Union leader
<i>Average n. of children:</i> 1.9	<i>Place of employment:</i> commune health centre	<i>Place of employment:</i> Commune health centre	
<i>Interviewed at (average):</i> 13 months after delivery			
<i>Living with:</i> 8 with in-laws, 1 in own house			

3.2.2 Quantitative data gathering

Instead of a sample size calculation, pragmatic concerns determined the sample size for study IV. A cohort of all pregnant women was selected from the DSS study population during the study period between March and October 2008. Data was collected from the pregnant women (n = 355) in their third trimester. Only singletons were included in the study, while stillbirths, neonatal deaths and miscarriages were excluded from the study, as were women who migrated out of the study area. Written informed consent was obtained from all participants.

3.2.2.1 Assessment of antenatal depression

Severity of AND symptoms was assessed with the 10-item self-report Edinburgh Depression Scale (EDS), translated to Vietnamese (Fisher, Morrow et al. 2004) and validated in the Vietnamese setting (unpublished, Tuan T. personal communication). The EDS is the most established and widely used instrument for assessment of depression around pregnancy (Boyd, Le et al. 2005; Gaynes, Gavin et al. 2005) as it does not rely on somatic symptoms that are normative in pregnancy. The questionnaires were completed at the informants' homes, in a private room. Since the informants in this semi-rural area of Vietnam were not accustomed to completing questionnaires, the EDS questions were delivered in an interview format by the surveyors. The EDS has a maximum score of 30 and the cut-off score to distinguish between probable cases of depression in Vietnam is 13 (Fisher, Morrow et al. 2004).

3.2.2.2 Assessment of other risk factors

A number of reproductive and sociodemographic risk-factors were measured as potential confounders of the association between AND and the outcomes. These risk-factors were extracted from data that is routinely collected through the DSS surveys and included: having two or more children, the sex of the child (this variable was chosen because most women in the study setting were thought to find out the sex of the

infant during the pregnancy, as suggested by findings in study II), the woman’s relation to the head of household (dichotomised as the woman being head of household, yes or no), the household economic status (this was in accordance with the classification system of the Vietnam Ministry of Labour, Invalids and Social Affairs, based on a number of variables but mainly on the total amount of rice per person/month, dichotomised as low/average or upper average/high), the woman’s age being less, or equal and more than 25 years, and vaginal bleeding during pregnancy (yes or no). Smoking status was not considered as only one woman in the cohort smoked.

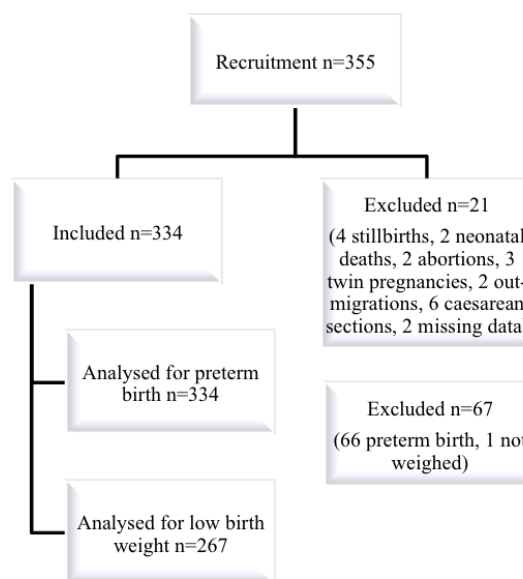
3.2.2.3 Outcome measures

Infant birth weight is measured upon delivery in the labor room when the delivery is institutional; in our study cohort only one delivery was performed at home, and the baby was thus excluded from analysis as it was not weighed. LBW was defined as below 2500 grams. Gestational age was estimated as the time between the women’s self-reported first day of last menstruation and the delivery. Preterm delivery was defined preterm birth before 37 completed weeks of gestation. Caesarean sections were excluded from the analyses even if they were performed preterm.

3.2.2.4 Study IV participants

Three hundred and fifty five women were identified in their second/third trimester of pregnancy (see Figure 2). In study IV, all pregnant women who were approached for the study agreed to participate. Four stillbirths, two neonatal deaths, two abortions, three twin pregnancies, two out-migrations, and six caesarean sections were excluded and two subjects were discarded due to missing data. Thus, 334 pregnancies (94%), recruited at a mean of 36.5 weeks (SD = 5) of gestation, were included in the analysis of preterm birth and antenatal depression. The women’s mean age was 24 years (SD = 4.9) and almost 19% of the respondents were primiparas, with a mean number of 1.4 children (SD = 1). Almost all (99%) respondents were married, while one was divorced and three were widowed. Two-thirds (66%) of the mothers were farmers and 61% lived in households with average or high economic status and 13.5% in households with low economic status. For the analysis of low birth weight we excluded all preterm births from the sample, leaving 267 women.

Figure 2: Flowchart of participants



3.2.3 Analysis

3.2.3.1 Study I: content analysis

The material collected in study I was analysed according to content analysis (Graneheim and Lundman 2004; Buse, Mays et al. 2005). The analysis was performed in accordance with the elements of the mental health policy template. All material was read through several times, and the essential parts of the text were divided into meaning units. Consequently, the meaning units were condensed into condensed meaning units (we did not condense the meaning units into so-called codes in this analysis, as described by Granheim and Lundman (2004)). The condensed meaning units were then divided into categories and sub-categories in accordance with the policy template (see Table 2).

3.2.3.2 Studies II and III: Qualitative content analysis

The material collected in studies II and III was analyzed using the qualitative content analysis method (Graneheim and Lundman 2004). The material was read several times and all the relevant passages were divided into meaning units, on which the analysis was based. The meaning units were condensed into codes where the essential meaning relevant for the analysis was preserved. Once this had been done for all the interviews, the codes were analyzed and compared with each other to form subcategories, categories and themes.

For studies II and III we performed so-called conventional content analysis (Hsieh and Shannon 2005), where preconceived categories are not used. Though the questions for study II were designed according to the categories of the illness explanatory model framework, in the analysis procedure the categories were allowed to 'flow from the data'. An example of the analysis procedure, whereby meaning units were condensed into condensed meaning units and codes from individual interviews in study III are shown in Table 7 below. An example of how codes were grouped into sub-categories and categories in study II is shown in Table 8.

Table 7: Meaning units, condensed meaning units and codes from the ‘problems with family’ category, study III

Meaning unit	Condensed meaning unit	Code
My mother-in-law kept complaining when I did the sewing.	Mother-in-law complained about sewing	Problems with in-laws
She talked about many things. She said I was not economical. I did the sewing at night and she didn't like it. Q: Can you explain more? A: She complained about the electricity.	Mother-in-law complained about wasting electricity.	Problems with in-laws
My husband and I are not very harmonious because my mother-in-law often adds fuel to the fire when we argue. She blames everything on me.	Mother-in-law blamed her when argued with husband	Problems with in-laws
A: My mother in-law was hard to please with my housework. She complained even about tiny problems. Q: For example? A: When I did something that she wasn't pleased about, she always complained. Q: How did she complain? A: She shouted at me. Q: Really? How did you feel? A: I felt unpleasant and sometimes I talked back to her.	Mother-in-law complaining about housework, shouting. Woman talking back at mother-in-law	Problems with in-laws
Because only my father-in-law and I were at home. As parent and daughter-in-law, we rarely talk to each other. Q: You felt sad because your husband worked away from home? A: Just because there was no one to talk to.	Not talking with father-in-law, no one to talk to.	Problems with in-laws

Table 8: Codes, sub-categories, categories from the theme ‘label’ given to the vignette in study II (HW: health worker; M: mother)

<i>Depression</i>			
Theme	Category	Sub-category	Code
Label	Medical	Nerves	neurasthenia (HW/M),
		Mental	unstable mind (M), mental inhibition (HW), mental illness (HW), mental problems (HW/M)
		Psychiatric	depression (HW/M), schizophrenia (HW)
	Non-medical	Health problem	health problem (HW), illness (HW)
		Psychological	psychological illness (M), psychological problems (HW),
		Colloquial	memory disorder (M), crazy (M) Sadness (M), Tiredness (M), “hifi” (M)
		Thinking	thinking illness (HW/M), thinking problems (HW/M), negative thinking (M)
	Not known	Spiritual	Spiritual problems (M)
Not known		Not known (HW/M)	

3.2.3.3 Study I: Validation

In study I, as a check for validity of the results, the article manuscript was sent to all English-speaking informants for feedback before final revisions. However, only one informant in addition to the two co-authors provided comments, despite three e-mail reminders.

3.2.3.4 Studies II and III: Qualitative validation

For studies II and III, after the analysis of the English versions of the interviews by the thesis author, the analysis was checked against the Vietnamese versions by a Vietnamese researcher. Also, for study II, the English language analysis was checked by a third, senior researcher. The second analysis aimed to see if the codes and categories that arose from the English translations still made sense when compared to the original, Vietnamese interviews. Any points of disagreement between the first, second (and in study II, third) analyses were discussed among the authors and adjusted accordingly.

3.2.3.5 Study IV: Statistical analysis

For study IV we performed descriptive analyses on the baseline characteristics of study participants. We conducted bivariate tests of association between antenatal depression and the perinatal outcomes, where Chi² tests and crude odds ratios were calculated. Multiple logistic regression analysis with a significance at 5% as inclusion criteria was used for adjusting for confounding to build a multivariate model.

4 ETHICAL CONSIDERATIONS

This thesis work has obtained ethical clearance from the Hanoi Medical University ethics board (approval number: IRB 0003121) as well as from the Stockholm regional ethics board (reference number: 2007/559-31/3).

All research participants were informed about the scope of the research, their right to remain anonymous and to withdraw from the study at any time. This information was provided for participants in written form prior to participation in the study. Participants in study I, II and III were asked whether the interview could be recorded. Most participants in study I did not agree with recording, and thus detailed notes were taken during the interviews instead. Participants in study IV were interviewed in privacy in their homes, individual interview participants in studies II and III were interviewed in a private room at the community health center, and the FGDs were conducted at the participants' work places or in one of the participants' homes. Participants in study I were interviewed at their work places. All participants were given written and verbal information about the study and asked for verbal consent before inclusion in the study, asked to sign a written consent form after the completed interview, and were compensated economically for time away from income-generating work (apart for study IV). All participants were given contact information to the field research team leader in case any concerns should have arisen after the interview. Participants in study IV and individual interview participants in study III were given the contact information to a medical practitioner in case any such concerns should emerge.

5 RESULTS

The main findings from the four thesis papers (I-IV) are presented below. The focus is on causes and consequences of perinatal depression as well as on structural, cultural and individual prerequisites for its treatment/prevention.

5.1 THE VIETNAM MENTAL HEALTH SYSTEM (STUDY I)

Interviews conducted for the Vietnam Mental Health Country Profile (Study I) are shown in Table 3. Additional results were drawn from documents that were collected from the informants (Table 4). In the results below, in order to guard interviewee anonymity I have not shown which information comes from which interviewee. I have thus annotated information that came from interviews with (i) and information that came from documents with the document number (according to Table 4, from 1 to 17). Note that not all the gathered documents are quoted in the results below. This is because only the central findings are described. For detailed results see paper I.

The result showed that Vietnam's mental health policy was last revised in 1989 (2), and until 2004 it was a national plan of action on treatment of schizophrenia and epilepsy in hospitals. There were no health promotion or illness prevention strategies, and no community-based or primary care policies addressing mental health (5). The government has developed a 5-year national plan of action for 2006-2010, which incorporates mental health issues, and proposes to screen pregnant women and children for mental illness (5). Since 1945, guidelines to develop traditional medicine through research, promotion and integration with biomedicine have been implemented, and health insurance fully covers traditional medicine treatment and products (i).

5.1.1 National mental health programs

A Community Based Mental Health Care Project (the National Target Program on Mental Health) was approved by the Government in 1999. It was initiated in 2000 for schizophrenia, and for epilepsy in 2004 (6, 8). The main objective of the program is to provide mental health services at the community level through mobilizing community resources. Overall objectives until 2010 are to cover all communes and include epilepsy and depression in the project, though the focal disorder for the period 2006-2010 is schizophrenia (8). By June 2006, 3323 communes were covered by this project (13) and in 2009, the management model for epilepsy and depression had been implemented in 53 communes (i). The activities of this model include mental health training of health staff and health collaborators, household surveys to identify depression and epilepsy patients, monthly delivery of medicines for patients, and monitoring and supporting patients through medicine and health education through village media (i).

A Non-Communicable Disease (NCD) program has been initiated in 2002. During the period 2002-2010, the NCD program focused on hypertension, diabetes, some common forms of cancer and mental health (i). These four National Target Programs have so far only been implemented within the MoH and have not yet collaborated closely with other Ministries (i). An integrated model on NCD control was developed in 2006 and piloted in the community from 2007. By the end of 2008, mental health care was not

included in the pilot project (14). The national surveillance system on NCDs was developed and initiated in 2007 and a pilot was implemented in 8 different geographical provinces (12).

5.1.2 Non-governmental players

National and international Non-Governmental Organizations (NGOs), multilateral organizations, and international universities have provided regular support for mental health issues in Vietnam (5). A national NGO, the Research and Training Centre for Community Development, has had long term engagement with the government, resulting in the prevalence of mental illness among mothers and children being cited in the national plan of action (5). The International Organization of Migration is involved in capacity building and training of social workers and counselors, and in child mental health work (1). The Atlantic Philanthropies is an international NGO, which has since 2006 funded the development of a mental health surveillance system (i). The WHO supports technical expertise and has initiated the development of the mental health law and of the NCD control model (i).

5.1.3 Needs and resources

According to MoH statistics, mental hospitals in Vietnam hold three diagnostic groups of patients: schizophrenia, schizotypal and delusional disorders (60%), mood disorders (15%) and neurotic, stress-related and somatoform disorders (15%) (2). There is little published scientific evidence about the extent and nature of mental health problems in Vietnam (5).

In the past, medical care in Vietnam was free of charge at all levels. However, after the adoption of the economic renovation policy in 1986, only a part of patients' medical costs have been shouldered by hospitals, while private for-profit clinics have been permitted to open. Mental hospitals are entirely subsidized by the government (i). The government only pays for control and medication of epilepsy and schizophrenia, while medication and treatment for other mental illnesses is paid out-of-pocket (9). The supply and pricing of psychiatric medicines is regulated by the Vietnamese government, and the cost of antipsychotic medication is one third of one day's minimum wage (2). All mental health outpatient facilities have psychotropic medicine, including anti-psychotic, antidepressant, mood stabilizer, anxiolytic and antiepileptic medicines. Mental hospitals generally hold enough psychotropic medicines, and 51-80% of primary health care facilities have at least one psychotropic medicine of each therapeutic category (2). The national target was to reach full health insurance coverage by 2010, but by 2009 only close to half of the population was covered (i).

In Vietnam there are both psychiatrists, who specialize for three years, and psychiatric doctors who receive one year of training in psychiatry (i). General practitioners receive one month of mental health training and in the training programme for nurses, one percent of the curriculum is devoted to psychiatry (i). In 2007 the MoH has together with the WHO authored a document with basic guidelines for the treatment, care and management of mental disorders in the community (7). This document is primarily based on the ICD-10, DSM-III-R and DSM-IV-R, and is to be distributed to GPs at the provincial and district levels (7).

There are 64 provinces in Vietnam and in 27 of these there is a separate psychiatric hospital, while in the rest of the provinces psychiatric care occurs at the district hospital (i). There are three hospitals that operate under the MoH, and these include the two central mental hospitals in Ha Tay in the north, Bien Hoa in the south and the NIMH at the Bach Mai hospital, Hanoi (8). There are three independent mental health dispensaries in three provinces, 10 mental health dispensaries in 27 provincial mental hospitals, and 25 mental health departments in social diseases prevention centers (8). Two provinces do not have a mental hospital or department (8).

5.1.4 Treatment

The medical management of mental illness in Vietnam only involves medication, and there is no family education or psychotherapy (i). Only doctors are allowed to prescribe psychotropic medication (2). Those psychologists who work in hospitals are engaged in clinical testing of patients (2). About 5% of patients in community-based inpatient units, and 60-70% of patients at mental hospitals received one or more psychosocial intervention in 2004 (2). Twenty percent of the physician-based primary health care services include complementary/alternative/traditional practitioners (2). Traditional medicine is used for neurasthenia, and dissociative disorders and treatment consists mainly of acupuncture, massage and herbal medicines (i). Patients with schizophrenia, personality disorders, paranoia, or suicidal thoughts are not treated by traditional medicine (i).

5.1.5 Recommendations

The WHO has encouraged the Vietnam government to develop mental health care in all hospitals instead of separate asylum-type tertiary hospitals to decrease the isolation and stigma attached to the mentally ill (i). Additional WHO recommendations include providing treatment at the primary care level, increasing the availability of psychotropic medicines, developing community-based care, training, recruiting and providing sufficient pay for professionals, and educating the general public on mental disorders (7). Through collaboration between researchers and policy makers, the main gaps identified are the lack of knowledge about the feasibility and cost of any intervention (5).

5.2 CAUSES FOR PERINATAL DEPRESSION (STUDIES II-IV)

5.2.1 Quantitative (Study IV)

In study IV, among the mothers who were included in the analysis, 5.7 % (n = 19) individuals suffered from probable antenatal depression (i.e. scored above 13 in the EDS). The mean score of the mothers included in the analysis was 3.54 (SD = 4.2). Antenatal depression was not significantly associated with any of the examined risk-factors (see methods section for details). However, a close-to-significant, association was found for: having less than two children (OR=1.69 and CI_{95%} = 0.53 - 5.32), low economic status (OR=6.55 and CI_{95%} = 0.86 - 49.80), and maternal age over 25 years (OR=1.56 and CI_{95%} = 0.56 - 4.52).

5.2.2 Qualitative (Studies II and III)

In Study II, the causes of depression and postnatal depression were grouped into four main categories: the external, the relational, the personal and not known. Results from study III and IV are also presented according to these categories below.

5.2.2.1 *External causes*

For mothers interviewed in study II, the most commonly mentioned external causes were physical and economic problems. Physical cause usually implied that the person had a depression because she had some other illness, but not that the depression was a direct symptom of that illness. Some expressed that another person's illness could cause the depression. Mental illness in general and depression in particular were never mentioned by anyone as a cause in itself. For health workers (Study II), the most commonly mentioned external cause was physical cause. Unlike the mothers, health workers sometimes described depression as a direct symptom of a physical problem. In some cases in study III, an illness in the family coincided with the pregnancy, aggravating the depression. Economic causes were also mentioned as a cause by mothers in study III, but not often.

Interestingly, even when only asked about depression in general, and not postnatal depression in particular, some health workers gave failure to conceive a male child as a cause. The most commonly mentioned cause for postnatal depression was not having a son, where almost all mothers and health workers (study II) mentioned this cause. Traditional customs were often given as a reason for preferring sons. Problems with the pregnancy or with giving birth were assigned as causes in study III, as well as concerns about the baby being of the 'wrong' sex (girl).

Q: How did [your husband] react when he knew it was a girl?

A: It was not very comfortable. When I was pregnant, he was angry with me. (Mother, study III)

5.2.2.2 *Relational causes*

Relational causes were the most commonly mentioned causes by participants in study II, and were also commonly mentioned by elderly women and health workers in study III. Family problems causing depression could include problems with the core family (the husband and children) as well as problems with parents and in-laws. The husband's behavior could cause depression and was often described as physically aggressive, or in other ways harmful for the family's life.

Among mothers in study III, the depressive symptoms were most often accounted for by problematic relationships with in-laws, or with the husband. Eight of the nine interviewees lived with the husband's family. The problems with in-laws were mainly problems with the mother-in-law, and could be caused by arguments concerning household chores, or that the mother-in-law had a negative impact on the relationship between husband and wife either through adding fuel to the fire when the couple argued or through not approving of intimacy between them. Problems with the husband

could comprise argument and anger, including the husband being angry with the wife because she had argued with his mother. Additionally, some women had husbands who worked far away from home, or who ‘played’ a lot (mainly gambling and going to sing karaoke), and this raised concerns about him being unfaithful with other women. Blame for problems was often assigned to the women:

“Q: But at that time, did your parents-in-law know your problem? [...]

A: Yes, they did. If he [the husband] was a thoughtful person, he would change when he sees that his wife was being scolded for his sake. But he didn’t.

Q: Ah, they shouted at you?

A: Yes, they shout at everybody.

Q: How did you feel when your husband and your parents-in-law reacted like that?

A: I just felt sad because of my husband, but my parents-in-law were right when they shouted at me; there would not be such a problem if I could persuade my husband, but I couldn’t change him.

Q: Why did they shout at you if you didn’t do anything wrong?

A: It could be considered my fault.” (Mother, study III)

5.2.2.3 *Personal causes*

The personal causes were those that were related to the personal characteristics or behavior of the depressed person. Mothers in study II, as well as elderly women and health workers in study III mentioned thinking problems as the most common personal cause. The thinking could be negative in nature, but also too much thinking in general could form a cause.

“Q: Some people who get trouble like you have described feel tired and disappointed, but others do not. What are the reasons for these differences?

A: Because one person is easy-going but the other is too thoughtful. She thinks so much. She thinks over and over, leading to that situation.” (Elderly woman, study III)

Some participants in study III also assigned the depression to a problem with the spirit and awareness, or nerves. Personal responsibility, including carrying the burden of the depression by themselves was another prominent cause of depression and postnatal depression in study II. This is exemplified in the quotes below.

“They think that they are useless and don’t want to become a burden for others”
(mother, study II)

“As a wife, we should endure our husbands. Being tense to them would lead to spousal quarrel, which can cause depression.” (mother, study II)

Individual characteristics were never assigned as causes for the depression by mothers in study III. However, even here, three women did mention that their ‘thinking too much’ aggravated the problem.

5.2.2.4 *Cause not known*

The cause for the depression or postnatal depression was unknown for many participants in study II, and this was said to be due to lack of communication from the person suffering:

“It is difficult for us to know about the causes for their sadness because they don’t often talk with us about their contact, their family or their personal life.” (Health worker, study II).

5.3 CONSEQUENCES AND ASSOCIATIONS OF PERINATAL DEPRESSION

5.3.1 Quantitative (Study IV)

The proportion of preterm infants in study IV was 19.8 % (n=66), and of LBW infants was 4.2 % (n=14). A number of independent associated factors for antenatal depression, preterm birth and LBW were examined (see methods section). AND was significantly associated with an increased risk of preterm birth (OR = 3.22 and CI_{95%} = 1.24 - 8.37). This association was maintained in the multivariate logistic regression model (Table 8). Apart from AND, preterm birth was only significantly associated with maternal age over 25 years (OR: 1.95, CI_{95%}: 1.06 - 3.61). LBW was not associated with AND – in the bivariate analysis there were no LBW infants born to women with an EDS score over 13, and also no association was found when EDS scores were included as continuous variables. In the univariate analyses with LBW as outcome variable, LBW was not significantly associated with any of the explanatory variables. However, vaginal bleeding during pregnancy (OR: 7.06, CI_{95%}: 0.73 - 68.06) and the baby being a girl (OR: 5.56, CI_{95%}: 0.66 - 46.80) showed a non-significant tendency toward association. Having less than two children and not being the head of household perfectly predicted LBW in two-by-two analyses, in that there were no LBW babies born to women with two or more children, or who were heads of household.

Table 8: Association of baseline socio-economic and reproductive health characteristics and AND with preterm birth

Baseline characteristics (n=334)	Incident cases of preterm birth, n (%)	Incident cases of birth at term, n (%)	OR (CI _{95%})	Adjusted OR
<i>Antenatal depression</i>				
Yes	8 (42%)	11 (58%)	3.22 (1.24-8.37)	3.09 (1.18-8.10)
No	58 (18%)	257 (82%)		
<i>Age, years</i>				
≥ 25	50 (23%)	165 (77%)	1.95 (1.06-3.61)	1.91 (1.03-3.54)
< 25	16 (13%)	103 (87%)		
<i>Baby sex</i>				
Male	28 (17%)	141(83%)	0.66 (0.39-1.14)	
Female	38 (23%)	127 (77%)		
<i>N children >2</i>				
Yes	7 (15%)	40 (85%)	0.68 (0.30-1.59)	
No	59 (21%)	228 (79%)		
<i>HOHH</i>				
Yes	1 (9%)	10 (91%)	0.40 (0.05-3.16)	
No	65 (20%)	258 (80%)		
<i>Econ. stat.</i>				
Average/High	14 (16%)	71 (84%)	1.34 (0.70-2.56)	
Low	52 (21%)	197 (79%)		
<i>Vag. bleeding</i>				
Yes	2 (22%)	7 (78%)	1.16 (0.24-5.74)	
No	64 (20%)	261 (80%)		

Table legend: OR (odds ratio), HOHH (head of household), Econ. Stat. (economic status), Vag. bleeding (vaginal bleeding)

5.3.2 Qualitative (Study II)

In study II, depression was said to cause not wanting to work and this carried negative impact on financial status. Depression was also said to impact health as a result of the impact of mental ailments on physical health. The consequences on the family ranged from the family being unhappy to the husband leaving the family. The negative impact on the baby was the most commonly mentioned consequence of postnatal depression. This included malnutrition due to the mother not having enough milk, poor mother-infant relation, and the mother not taking care of the infant.

5.4 ADVICE FOR PREVENTION AND TREATMENT OF PERINATAL DEPRESSION

5.4.1 General advice given (studies II and III)

The most commonly recommended help for depression/postnatal depression in study II was that of somatic medical help. However, this medical help was most commonly not advised in order to treat the depression itself, but to treat a physical illness or disease that was considered the underlying cause for the depression. Medical care of the infant was recommended by participants in study II if the infant's illness was thought to be the cause of the postnatal depression. Also, half of the health workers in study II recommended psychiatric treatment. Advice to seek formal help for depression itself, and not its causes, was rarely expressed by the mothers in study II. However, they advised seeking other forms of formal help, such as traditional medicine and fortune tellers in order to care for the depression itself, and not its possible causes. The vignette in studies II and III were rarely labeled as depression by interview or FGD participants. However, other labels were given for the disorder, the most notable being 'thinking problems' and 'neurasthenia'. Many mothers and one health worker in study II advised against medical help for depression:

"The doctors just can check their health when they have a certain disease, but the doctors cannot check them when they have something wrong with their thinking."
(Mother, study II)

Mothers and FGD participants in study III thought that speaking to someone outside the family, such as friends, had been or could be helpful in reducing their worry. Two women expressed that the interview itself had made them feel better, as they had finally been able to talk about everything – this is not something they are usually able to do with friends or family. For mothers in study II and FGD participants in study III, the involvement of family members was mentioned as an important source of help, but in some cases support could also be given by friends and peers. FGD participants in study III also recommended members of the women's union as a good source of external support.

Many of the participants in study III thought that a change in thinking or attitude may have aided the depression, including 'staying calm', 'letting it be' and 'trying to forget it'. Mothers in study II most commonly gave advice for coping with the depression on one's own. This included advice to simply cope with the problems on one's own, and in some cases advice to not bother other's with one's own troubles, and even conceal the problems from others.

"It's better to forget them all [the troubles]." (Elderly woman 1, study III)

"They should leave everything to fate." (Elderly woman 2, study III)

Here in the countryside, we are used to misery. The more we think the more tired we are." (Elderly woman 3, study III)

"It's no use thinking. Just leave everything to fate." (Elderly woman 2, study III)

5.4.2 Recommendations for the mindfulness intervention

The participants in the FGDs in study III were asked specifically about the suitability of the mindfulness exercises for the local community, and all participants agreed that the exercise seemed good and realistic for the purpose of preventing depression or ‘too much thinking’ through making the mind relaxed and focused on something else instead of the negative thoughts. Some participants made a link between the usefulness of the exercise for the pregnant woman’s well-being, and its consequent positive effect on the baby’s health. However, many participants thought the exercises could be useful not only for pregnant women, but for all members of the community, and that through improving the health of the individuals, the exercise could contribute to the good of the community as a whole. One elderly woman contrasted the mindfulness method with conventional health-care as follows:

“Now we should have some time to relax to stay healthy. It's a waste of time and money to go to hospital and we are still not healthy, so we should practice some simple exercises.” (Elderly woman, study III)

The main and only obstacle that was mentioned by some participants for practicing was lack of time. Especially women with small children were thought to not have enough time on their hands to practice. Some, however, suggested practicing in the evening as a solution to time constraints.

A number of arenas for the dissemination and provision of the mindfulness intervention were suggested. The most commonly suggested place was at community meetings. These included woman’s union, population committee, reproductive health information meetings as well as more informal community meetings that women hold on Saturday evenings. Dissemination of information about the intervention was recommended to be done through community loudspeaker broadcasting. It was considered problematic that women who were depressed would not be likely to talk about their problems, and thus could not be specifically reached for the intervention. Thus, a more generic approach reaching a wider scope of the population was recommended.

6 DISCUSSION

6.1 METHODOLOGICAL DISCUSSION

This thesis work has utilized a mixed methods approach to understand how to improve perinatal maternal mental health in Vietnam. According to Tashakkori and Teddle (2003) a variety of data sources and analyses are needed to understand complex and multifaceted realities. The issue of perinatal depression management in the Vietnamese context is multifaceted and complex, with health systems, cultural and behavioral components as well as a multitude of contributing risk-factors and consequences on the individual and the larger, societal level. We have tackled this through studying the phenomenon from three levels: The societal, health systems level through which perinatal depression management would be provided was investigated through study I. The level of the individuals possibly receiving or providing perinatal depression care was understood and detailed through studies II and III. The magnitude of the issue of perinatal depression, as well as relevant quantifiable risk-factors and consequences were elaborated through study IV.

In order for mixed methods research to provide added value in comparison to the use of single methods towards the understanding of a phenomenon, methods should be mixed in a way that has complementary strengths and non-overlapping weaknesses (Tashakkori and Teddle 2003). The methods used in the thesis studies II and III complement methods used in studies I and IV in such a manner. Studies II and III give an in-depth, qualitative picture of recommendations for the management of perinatal depression through the explanatory models and individual experiences of community stakeholders. This is complemented by the health systems level understanding gained in study I of the available resources as well as the strengths and weaknesses of the mental health system in which such management methods would be implemented. Study IV gives an epidemiological understanding of the contributing risk-factors and consequences of perinatal depression. This is detailed and elaborated by a qualitative, more in-depth perspective of causation and consequences of perinatal depression at the level of the individuals in the community. In addition, the fact that all studies II, III and IV were conducted in the same semi-rural region of Ba Vi adds to their complementarity. Some of the main methodological issues of the constituent studies are discussed in the following.

6.1.1 Trustworthiness of the constituent studies

6.1.1.1 Quantitative methodology

The trustworthiness of the quantitative study IV can be discussed in terms of internal, external, construct and statistical conclusions validity. *Internal validity* refers to whether the study accurately measures what it purports to and is threatened by a number of issues such as confounding and measurement bias. *External validity* refers to whether the results can be generalized beyond the study population and is threatened by for example reactivity such as Hawthorne effects. *Construct validity* refers to whether a scale used accurately measures the construct it purports to measure. *Conclusions validity* refers to the extent to which effects can be detected in the study and is affected by the statistical power of the study (Kazdin 2003).

6.1.1.1.1 Internal validity

There were some concerns regarding the internal validity of the outcome measures in study IV. With regard to the validity of the birth weight measures, we did not have the possibility to personally weigh the new-borns, but had to rely on a verbal account of the weight taken in the delivery room. Though the procedures for weighing new-borns are standardised in the Vietnamese health-care setting, we cannot be sure whether standard procedures were followed for each individual case. Thus, there was possibly some rate of measurement bias in the birth weight measures, though we do not expect this form of bias to have been systematic in terms of the exposure (AND) status. The validity of LMP measures for estimating length of parturition in both high- and low income country settings is a topic of continued discussion (Rosenberg, Ahmed et al. 2009; Jehan, Zaidi et al. 2010), though its main weakness is in predicting post-term birth (Hoffman, Messer et al. 2008; Jehan, Zaidi et al. 2010). LMP is widely used to estimate the duration of pregnancy (Hoffman, Messer et al. 2008; Rosenberg, Ahmed et al. 2009). Factors decreasing the validity of LMP include recall bias and vaginal bleeding in early pregnancy, which tends to be more common for women with antenatal stress and anxiety. This could be a possible confounder of the association between preterm birth and AND, though such confounding was not observed in our study. Other studies have indicated that pregnancy-related events are major events in women's lives, and thus not very sensitive to recall bias (Sou, Chen et al. 2006).

A potential situational contaminant (Polit, Beck et al. 2001) of measurement validity in study IV was the use of surveyors from the local community. This practice is the standard procedure followed by the Fila Bavi epidemiological field laboratory but may not be appropriate for investigation of sensitive issues. Mental illness is stigmatised in Vietnam and not openly spoken about (Nguyen, Hunt et al. 2005), and intimacy with the surveyor and her being from the same community may act as an obstacle and may have led to under reporting of AND symptoms.

6.1.1.1.2 External validity

As mentioned earlier, the Fila Bavi epidemiological field lab has been chosen to represent a typical region in the northern part of Vietnam, and households have been selected randomly to be representative of the total area population. Since we surveyed all pregnant women during the study period who lived in field laboratory households, we can expect the external validity of the study to be good, and generalizable to other, similar populations in northern Vietnam. However, the external validity may have been hampered by a Hawthorne effect: Merely the fact of being surveyed on a tri-monthly basis as regards to health status, pregnancy and socioeconomic status may be protective in terms of AND.

6.1.1.1.3 Construct validity

With regard to validity of the primary outcome measure, the Edinburgh Depression Scale is the most widely used screening scale for postnatal depression in the world and its validity in various settings has been assessed (Santos, Matijasevich et al. 2007). It has been validated also for AND (Murray and Cox 1990). As a screening instrument,

the EDS does not compensate for a clinical diagnosis, but has a relatively good predictive value for detecting depression.

6.1.1.1.4 Conclusions validity

With regard to the conclusions validity of study IV, we were not able to recruit participants according to a sample size calculation due to resource restrictions. Given the observed rates of AND and LBW, a sample size of 4129 would have been required in order to detect a two-fold increase in odds of LBW in those with AND, with a precision of 0.05 and 80% statistical power. A larger sample size may also have also shown association with additional risk-factors.

6.1.1.2 *Qualitative methodology*

The trustworthiness of the qualitative studies I, II and III can be evaluated in a variety of manners, depending on the qualitative research tradition that is adhered to. I have chosen to discuss the methods in accordance with their credibility, dependability, confirmability and transferability (Polit, Beck et al. 2001). *Credibility* is the qualitative equivalent to internal validity, *transferability* is the equivalent of external validity, *dependability* refers to the stability of data over time and *conformability* of findings refers to whether conclusions are grounded in the data (Polit, Beck et al. 2001).

6.1.1.2.1 Credibility

Credibility of qualitative studies is enhanced through prolonged engagement and persistent observation, meaning that sufficient time is invested in data collection activities in order to have an in-depth understanding of the culture, language or views of the group under study (Polit, Beck et al. 2001). Measures taken to this end included the collaboration in the data collection and analysis of studies II and III with local researchers who had previously conducted qualitative research in the study area. Also, the triangulation of different viewpoints was used as a means to increase the credibility of studies II and III, and we aimed to use member-checks as a method to increase credibility of study I results through giving all interview participants an opportunity to give feedback on the final manuscript, apart from two participants who did not speak English. However, only three informants provided feedback despite three reminders and the reasons for this remain obscure.

Another issue of relevance regarding the credibility of studies II and III is the translation of the interview transcripts. Translators are not neutral conveyors of messages, but rather read and translate from their own perspective and thus are active producers in research (Temple 2002). This was partly addressed in that study II and III interviews were translated by one person, and analysis of the Vietnamese versions of the interviews was performed by another person, and then compared to the results of the English language analysis. However, the effects of translation on the interpretation of findings cannot be completely ruled out.

The use of a DSM-IV based vignette in study II can be questioned in terms of credibility, because the symptoms of mental illness have been said to vary between cultures (Good 1992). Thus, it is possible that the symptoms that were described in our

case vignette were not recognised as symptoms of depression by our informants simply because depression in Vietnam may not be expressed in this manner. Thus, for study III we adjusted the depression case vignette in accordance with locally derived idioms of depression, as presented in the Phan Vietnamese Psychiatric Scale (Phan, Steel et al. 2004). However, this did not noticeably alter the recognition of depression among FGD participants.

6.1.1.2.2 Transferability

A weakness in the transferability of study I is that it was conducted solely in the Hanoi area. Though Hanoi is the capital of Vietnam, and most governmental and non-governmental institutions have their head office there, we may have gained a broader perspective by interviewing representatives from the Ho Chi Minh City area as well. Interviews within the health care system were only conducted at the central and governmental levels. Additional perspectives may have shed more light on the process of implementation within the mental health care system.

The transferability of the qualitative studies II and III was increased by that we attained saturation in the individual interviews and FGDs. Also, we aimed to recruit maximum variation samples in order to increase transferability.

Finally, for all three qualitative studies we have aimed to increase transferability of the results to other, similar contexts (Phan, Steel et al. 2004) through giving detailed descriptions of the study methods and settings (see original articles and manuscripts for detailed descriptions).

6.1.1.2.3 Dependability and confirmability

Dependability and confirmability in studies I, II and III was strengthened by the fact that the content analysis of the interviews was checked by several researchers. Two researchers conducted the analyses in studies II and III independently from each other, and in study II, a third researcher looked through the English language analysis and checked whether she agreed with the coding and categorising of the analysis. In this checking process, the points of disagreement were few, and when found, they were discussed in the research team and adjusted accordingly.

6.2 DISCUSSION OF MAIN RESULTS

The triangulation of qualitative, epidemiological and policy research methods has shed light on several aspects of the issue of perinatal depression. These issues have ranged from identifying need and resources at a population level (Study I) as well as at the individual level (Studies II and III). The pertinent societal and cultural issues as well as risk factors for perinatal depression have been investigated (Studies II, III and IV) and the associations of perinatal depression that have been identified (Study IV) will no doubt emphasize the importance of increased public health focus on the issue in Vietnam. Finally, we have made efforts to suggest a possible means of culturally appropriate management of perinatal depression in Vietnam. The main findings of the thesis work are discussed below.

6.2.1 Need for perinatal depression management

The 5.7 % prevalence rate of antenatal depression found in study IV were surprisingly much lower than rates of perinatal mental disorders found in three other studies in Vietnam, varying from 20% to 33% in both rural and urban populations (Tuan, Lan et al. 2003; Fisher, Morrow et al. 2004; Fisher, Tran et al. 2010). However, one Vietnamese study found even lower rates of AND than in the present study among socioeconomically advantaged urban residents (Fisher, Tran et al. 2007). Another study in the same setting as the present one found a 6.8% prevalence rate of mental distress among women (Giang, Dzung et al. 2010), which is comparable to our result. These marked variations may reflect both methodological factors discussed above and the variance in the contextual distribution of risk and protective factors. The rate of preterm birth in our study was high (19.8%) but corresponds to previous findings in the same setting (Klingberg-Allvin, Graner et al. 2010). A recent meta-analysis has found a rate of 11% for preterm births in South-East Asia (Beck, Wojdyla et al. 2010). A possible reason for the high rate is that using LMP as a measure may cause overestimation of preterm birth rates (Rosenberg, Ahmed et al. 2009). On the other hand, the rates of LBW (4.2%) found in our study were lower than could have been expected with reference to previous findings. In 2004, the rate of LBW for Vietnam was estimated at 9% (Wardlaw, Blanc et al. 2004). The low rates found may have been caused by a measurement bias as discussed above.

Nevertheless, we found a stark association in study IV between AND and preterm birth. This association is consistent with a number of studies in high income countries (Dayan, Creveuil et al. 2006; Suri, Altshuler et al. 2007; Field, Diego et al. 2009). This link may be due to a number of reasons such as poor self-care among depressed mothers (Patel and Prince 2006), which may increase the occurrence of other risk factors such as intrauterine infection (Goldenberg, Hauth et al. 2000), and effects mediated through the hypothalamic-pituitary axis (Wadhwa, Garite et al. 2004). Our study, however, did not examine the association of antenatal anxiety or stress and preterm birth, which has also been found in a number of studies (Dayan, Creveuil et al. 2002) – an even stronger association may have been found had we studied antenatal common mental disorders instead of depression alone. Preterm birth being one of the most significant problems in perinatology, there is a great need for preventive strategies (Beck, Wojdyla et al. 2010), one of which may be the prevention of AND. We did not find an association between AND and LBW, and this may have been due to lack of statistical power as discussed above, or due to real lack of association in our study setting. While some studies from India (Patel and Prince 2006), Pakistan (Rahman, Bunn et al. 2007) and Brazil (Ferri, Mitsuhiro et al. 2007) have shown an association between antenatal depression and LBW, the results from high income countries have been more mixed (Andersson, Sundstrom-Poromaa et al. 2004; Suri, Altshuler et al. 2007), suggesting that the association may only be apparent under certain contextual circumstances.

Through study I we learnt that the Vietnamese government had in its 5-year national plan of action for 2006-2010 proposed to screen pregnant women and children for mental illness. We are not aware of whether this plan was carried out, but if so, it would provide a good basis for any planned perinatal depression intervention. Perinatal

depression can be prevented and treated in low resource settings by relatively simple means (Patel, Araya et al. 2004), and should thus be a child health priority.

6.2.2 Causation of perinatal depression

In studies II and III we identified the deemed causes of perinatal depression through qualitative interviews with lay people and health workers, thus shedding light on local understandings of causation. These qualitative findings were complemented by the results from study IV, where risk-factors for antenatal depression were identified through epidemiological data.

Studies in other parts of Asia have strongly implicated the pressure to conceive a male child as a cause of postnatal depression (Patel, Rodrigues et al. 2002; Rahman, Iqbal et al. 2003). A preference for sons and the woman's responsibility for giving birth to sons were mentioned as causes for depression in studies II and III. In Vietnam, sons are honored more than daughters as family organization revolves around the patrilineage and descent is traced patrilineally. Thus, it may be seen as the wife's duty to reproduce the patrilineage of her husband, thus honoring it and demonstrating 'filial piety' (Rydström 2010). In a demographic health survey conducted in Hanoi (Thin 1998), the preference for sons was found to be prevalent, and the trend is toward sex selection becoming increasingly common (UNFPA 2007).

Especially in rural settings, traditional, multigenerational households are still predominant in Vietnam, where women after marriage move into the house of their in-laws, and thus have very little autonomy (Ngoc 2004). In line with this, participants from studies II and III mentioned family-related causes for depression, including problems within the core family or with in-laws. Other social causes included economical problems, as well as intimate partner violence. This mirrors previous findings that social and economical disadvantages of women, and lack of control over their life situation play an important role in causing higher prevalence rates of depression among women than among men worldwide (Astbury and Cabral 2000).

The relationship between a woman and her mother-in-law in Vietnam has been described as increasingly problematic in the age of globalization (Drummond and Rydstrom 2004). Many young women are caught in between modern values of gender equality and women's rights to work outside the house, and the traditional standards for women often held by their mothers-in-laws including self-sacrificing mother, devoted daughter-in-law, dedicated wife (*me hien, dau thao, vo dam*). Daughters-in-law have been described to be expected to serve and defer to their parents-in-law, and to often have to make substantial effort to get along with their mother-in-law (Drummond and Rydstrom 2004). Thus, the conflicts described by our informants in study III are not out of the ordinary, nor are problems with husbands who do not contribute to the child-rearing and house-keeping but go out and 'play' with their friends instead. Indeed the present era since Doi Moi - the Vietnamese market renovation that was initiated in 1986 - has been described to increase the inequities between women and men, as women - have been relocated predominantly in the domestic sphere (Fahey 2002). The virtual lack of contribution to household chores by the husband is usually supported by the mother-in-law (Drummond and Rydstrom 2004). As was the case for eight of our

nine individual interview participants in study III, post-marital patrilocal residence dominates in Vietnam, and women thus live in households where their in-laws are heads (Rydström 2010). Informants in study II mentioned intimate partner violence as a cause for perinatal depression. Indeed, lifetime prevalence rates of violence that study setting have been found to be as high as 31 % (Nguyen, Ostergren et al. 2008) and it has been implicated in the causation of perinatal depression (Edhborg, Nasreen et al. 2011). However, participants in study III, who spoke of their own experience did not mention intimate partner violence. This lack of discussion may have been influenced by the strong cultural tradition of not revealing what is going on within the family (Jonzon, Vung et al. 2007).

In study IV, having less than two children, low economic status, and maternal age over 25 years showed a tendency toward association with AND. Of these risk-factors, low economic status was a cause which was also identified through qualitative findings in studies II and III. Established risk-factors for perinatal depression in Asia include experienced verbal/physical abuse (Gausia, Fisher et al. 2009), poor social support (Rahman, Iqbal et al. 2003; Gausia, Fisher et al. 2009), low economic status (Rahman, Iqbal et al. 2003) and family preference for male child (Gausia, Fisher et al. 2009), all of which were identified as causes through our qualitative studies.

In conclusion, social, gender-based determinants of depression were found to be important in our studies and gain support in that the gender difference in depression rates is one of the most robust findings in psychiatric epidemiology (see WHO 2011). While the rates of depression vary between countries, depression is found almost everywhere to be twice as common among women as among men (Piccinell and Homen 1997). As suggested by our qualitative studies, low rank is a strong predictor of depression. Traditional gender roles increase depression susceptibility by stressing passivity, submission and dependence and impose a duty to take care of others and unpaid domestic and agricultural labor (WHO 2011). The Vietnam Women's Union has been successful in promoting women's advancement but simultaneously encourages women to pay attention to their Confucian role of maintaining family hierarchy and harmony. However, women would be more effectively supported by promoting a diversity of gender norms (Schuler, Anh et al. 2006). There is mounting evidence that globalization and restructuring have increased income inequalities and adverse life events and difficulties, and that the burden falls more acutely on women than it does on men (Sen and Stivens 1998; Patel, Araya et al. 1999; Werner 2008). There is evidence that an increase in gender based income disparities is associated with increasing rates of depression amongst women (Patel, Araya et al. 1999).

6.2.3 Perinatal depression management – obstacles and opportunities

The main obstacles identified in our studies II and III for perinatal depression management in Vietnam would occur already at the stage of detection. This is because depression in general and perinatal depression in particular is not considered an illness among the Vietnamese, a fact that gained much support from our findings. Also, further impeding care-seeking is the fact that depression, when experienced, is not openly spoken about.

6.2.3.1 Lack of communication

Our results corresponded well with what has been found by Tung (1980), who has described that Vietnamese people carry depression stoically alone. This aspect of personal responsibility for the causation and treatment of depression was very prevalent in our findings from studies II and III. In almost all the individual interviews, when initially asked about their pregnancy, the participants accounted of everything as having been fine, and did not speak of any major problems apart from physical ailments. However, when further probed by mentioning the EDS screening questionnaire that they had filled in and had obtained a high score on, a different more in-depth picture usually emerged and the participants spoke openly of having been in distress. Many participants mentioned that the issues they had been speaking of were something they barely spoke to anyone about, and that it had been a relief to be able to speak about them. The Vietnamese have even previously been described to not discuss personal emotions openly with others (Nguyen, Hunt et al. 2005). The Confucian roots of Vietnamese culture and communist values have resulted in a sense of community where the well-being of the collective is valued over that of the individual, and repression of emotional expression has functioned to maintain fluidity in relationships (Ngoc 2004).

6.2.3.2 Stigma

Others have shown that depression diagnosis in primary care is impeded by the reluctance of patients to communicate emotional symptoms (Docherty 1997). Another factor contributing to lack of communication may be the stigma attached to depression. According to the WHO (2001), reducing stigma should be globally prioritized as a population-based approach to improving mental health. In Asia, the tendency to stigmatize and discriminate against the mentally ill is prevalent, and concerns not only the mentally ill, but also their families, and the pathway to care is often impeded by skepticism towards mental health services and treatments (Lauber and Rossler 2007). Mass information campaigns may be useful for tackling stigma, as ignorance, cultural stereotypes and myths lead to prejudice (Henderson and Thornicroft 2009). Thus public information programs are recommended but have not yet been realized in Vietnam. Importantly, the transition from large tertiary psychiatric hospitals would also help to reduce stigma. The Community Based Mental Health Project initiative indicates an evolution from large psychiatric hospitals towards care in the community, in line with WHO recommendations (WHO 2001), though no efforts were found of closing of large tertiary hospitals. Additional steps towards community based management are the relatively good availability of psychotropic medication at primary care, increased training of general practitioners in mental health care, and the development of diagnosis and treatment guidelines for community care. Even a decade ago, most essential medications could be found in most parts of the country through the mushrooming of private pharmacies (Falkenberg, Nguyen et al. 2000) and it is mainly the high price of psychotropic medications that poses a problem since for many conditions they are paid out-of-pocket.

6.2.3.3 The concept of depression and alternative concepts

In study II, most informants did not label the ailment described in the case vignette as depression, and none labelled it as postnatal depression. However, the vignette was labelled as 'neurasthenia' and 'thinking problems' by some. This corresponds with findings by Nguyen et al. (2005) where among 115 people diagnosed with depression at a mental health clinic in Ho Chi Minh City only four of the individuals reported that they had known the term depression prior to diagnosis. The strong sense of personal responsibility for the conditions as well as the lack of communication from the person suffering should be taken into consideration already at a primary care level. In addition, mothers' lack of considering depression/postnatal depression as something that should be treated by specialist psychiatric care highlights the importance of diagnosis and treated already in primary care. However, there was notable lack of knowledge among the health workers in this study of the depression symptoms and appropriate care, and this problem should be tackled through improved education on psychiatric diagnosis among non-psychiatric health care personnel (Paris 2008).

Interestingly, some of the health workers and also some mothers in study II labelled depression and postnatal depression as neurasthenia. This corresponds with findings from China, where neurasthenia was commonly diagnosed by psychiatrists until the early 1980s, and still remains a common idiom among the lay Chinese (Kleinman 1982; Lee 1998). At a psychiatry outpatient clinic in China, 87 % of those who were diagnosed as neurasthenic were found to suffer from major depressive disorder (Kleinman 1982). This acceptance of neurasthenia in China may be due to it being a less stigmatising diagnosis than depression, as subjects with neurasthenia are by definition not deranged in mind or dangerous to others (Kleinman 1982; Lee 1998). Such an attitude toward neurasthenia as a diagnosis has not previously been found in Vietnam, though a case study of a Chinese Vietnamese immigrant woman in USA has suggested that neurasthenia may be a more acceptable label than depression even among the Vietnamese (Cheung and Lin 1997). Through study I we found that neurasthenia is treated by TVM. Thus, it is possible that a number of patients that would be regarded as having depression according to DSM-criteria may seek traditional medical care for what they themselves regard as neurasthenia. This assumption was supported by study II findings, where some informants recommended traditional medicine to treat perinatal depression. This issue would be interesting to study further, and the extent of TVM utilisation for depression could be investigated and evaluated for effectiveness. TVM has a long-standing strong position in the Vietnamese health care system, and the government has given much attention to its promotion and integration into the health care of Vietnamese people (Thuy 1999). Vietnam is one of four countries in the world described by WHO as having an integrated health care system where TVM is officially recognised as a vital part (WHO 2002).

6.2.3.4 Intervention options

There is limited research evidence of cost-effective perinatal depression treatment – which was also found to be true for Vietnam in study I. However, a number of studies have shown that combining medication with locally feasible psychological interventions can be effective and cost-effective among the poorest people in a low

income country, and produce significant reductions in total health care costs (Patel, Araya et al. 2004; Patel, Araya et al. 2007).

A number of psychological interventions could be feasible for perinatal depression management, but the present thesis has focused on the investigation of mindfulness as a deemed good alternative due to the cultural factors detailed in the introduction. Any intervention aiming to treat depression in the perinatal period should address the prevalent problems of family conflict, especially with the mother-in-law. MBSR is a method which includes discussion of communication strategies for stressful relationships (Kabat-Zinn 1991). For the Vietnamese context it is recommended that these discussions should specifically address the typical family conflicts that occur in that setting.

Information alone is not enough to advise health care choices, but the larger social context, which the individual is embedded in also plays a major role. From study III results it seems that the mindfulness intervention was acceptable to participants and considered to be coherent with local values. Also, a theoretical analysis of the interviews in study III also supports the hypothesis that mindfulness as an approach could be coherent with the way in which perinatal depression is contextualized. Many of the given causes and advices for depression are coherent with the theoretical framework of mindfulness. These include the prominent statements that depression was caused by too much thinking, and could be helped by leaving everything to fate. The concept of 'too much thinking' is addressed by mindfulness practice, which has been shown to prevent the tendencies to ruminative thinking that are prominent in those prone to depression (Teasdale, Moore et al. 2002). Also, acceptance of what one may call 'fate' is a central component of mindfulness practice as one of its central tenets is to accept reality as it is, without judgment. Furthermore, recent developments in Vietnam have evidenced the spread of mindfulness meditation practices among the lay population, especially after the internationally renowned Buddhist Zen master, Thich Nhat Hanh visited Vietnam together with his international Sangha after almost 40 years in exile (Chapman 2007). His visit gained wide media attention and resulted in the founding of four meditation centers around the country (Chapman 2007). Such meditation centers could also prove beneficial for the recruitment of experienced mindfulness meditation practitioners to train people at the community level in the provision of any mindfulness based intervention. Community health workers who already provide a range of maternal and child health-care interventions have been proven to be a good resource for the provision of community-based perinatal depression management in other low-resource settings (Rahman, Malik et al. 2008).

The Women's Union was mentioned by many as a good arena for an intervention. Indeed, the aim of depression prevention is well in line with the main goals of the Union, which acts as a grassroots administrator of government policies that aim to regulate the health, productivity and moral behavior of families, as well as ensuring "family happiness"(Pettus 2003). Since especially in rural regions, most women attend Women's Union meetings the outreach of such a setting would be broad. This would be in line with the work already done by the Union, which has included clubs for new mothers regarding infant care, solutions to marital conflicts and women's legal rights (Pettus 2003). Such an approach, if organized from a bottom-up perspective, could

provide an arena where pregnant women could discuss any difficulties they are experiencing during pregnancy, thus normalizing their experience. Most of the interview participants reported that it had been beneficial to be able to speak about their negative experiences from the pregnancy as they usually did not have the opportunity to speak to anyone of their personal worries in such an in-depth manner. Thus, providing a confidential setting for such discussion should be an integral part of a depression management intervention.

Finally, though low-cost psychological interventions provided by community health workers have proven effective for perinatal depression management in other low-resource settings, persistent forms of depression do not always respond to such an approach (Rahman, Malik et al. 2008). Thus, a stepped care approach to depression management is needed, where those with persistent depression are referred to specialist care and antidepressant medications (Patel and Kirkwood 2008). Also, since there is evidence that perinatal depression reflects chronic social adversity – a finding also supported by studies II, II and IV - an approach to mental health management that focuses solely on individual pathology will fail to address the prevalent social causes of depression (Astbury and Cabral 2000). A UNFPA-WHO international meeting on maternal mental health in Hanoi 2007 came to the conclusion that such an approach should involve multiple sectors including those dealing with development, poverty reduction, human rights, social protection, violence prevention, education, gender, and security (Astbury and Cabral 2000; Fisher, de Mello et al. 2011).

7 SUMMARY AND CONCLUSIONS

This thesis has explored perinatal depression in Vietnam through a mixed methods approach, thus using qualitative, quantitative and health policy research. The overall aim was to improve knowledge and understanding about perinatal depression to contribute to evidence based development of prevention and treatment strategies in Vietnam.

A mapping out of the strengths and weaknesses of the mental health system provides the framework within which any treatment or prevention strategies can be implemented. We found that the Vietnam mental health system has some strengths, but still many weaknesses. Strengths include an aim to move toward community based management of mental illness, and this is in line with recommendations from the WHO. However, there is no sign of closing down large tertiary psychiatric hospitals, which would be recommendable in order to reduce the stigma of mental illness. Stigma was an issue that emerged as possibly significant through the qualitative studies, where we found that depression is something rarely openly spoken about, and that this may impede care-seeking. Also, through the situation analysis, we found weaknesses of the Vietnam mental health system to be lack of treatment interventions apart from medications. A recommendation that emerged from these findings was to conduct research on low-cost psychological treatment modalities that do not depend of highly trained mental health personnel.

For the planning of any intervention, it is recommendable to first gain an in-depth understanding of the illness in the local context. Thus, we conducted epidemiological research on antenatal depression, in order to understand the extent of the problem in the Ba Vi district, its risk-factors and effects on the child. Though the prevalence of antenatal depression among our study population was not very high when compared to other studies in Vietnam, it was found to be significantly associated with preterm birth. Possible risk-factors for antenatal depression in our population were found to be having less than two children, low economic status, and maternal age over 25 years. Also, this study allowed us to identify mothers who had probably suffered from depression during pregnancy for in-depth interviews, which provided a deeper understanding of the experience of antenatal depression in the region.

Through our qualitative studies we gained a more in-depth understanding of the contributing factors of perinatal depression as well as factors that would influence care-seeking and recommendations for the development of a locally feasible psychological intervention. We thus found that perinatal depression has a strong social component, including pressure to conceive a male child and family concerns such as problems with the husband and in-laws. In addition, perinatal depression was thought to be caused by somatic concerns linked to pregnancy. Mindfulness was thought by the FGD participants to be a locally feasible intervention, and this was also supported by the theoretical background of the thesis work as well as by a theoretical analysis of the local understandings - illness explanatory models – of perinatal depression. Finally, due to the prevalent social adversities that we found to be relevant for causation of depression, an approach to mental health management that focuses solely on individual

pathology will fail to address these causes. Thus, multiple sectors should be involved, including those dealing with development, poverty reduction, human rights, social protection, violence prevention, education, gender, and security (Astbury and Cabral 2000; Fisher, de Mello et al. 2011).

8 IMPLICATIONS AND RECOMMENDATIONS

8.1 IMPLICATIONS FOR CLINICAL PRACTICE AND EDUCATION

Our findings from studies I and IV emphasize the importance of preventative measures for mental illnesses. In the case of perinatal depression, this could include public information campaigns as well as screening for depression among pregnant women. Indeed, the screening of pregnant women was part of the national plan of action for 2006-2010, in which case the success and results of this action should be followed up and evaluated. Also, the move away from large tertiary psychiatric hospitals towards community-based management of depression is recommended. The results from studies II and III should be considered when planning treatment protocols for those with depression and perinatal depression, so as to be in line with local understandings and needs for treatment. Also, the importance of improved knowledge and detection of depression at the levels of primary and maternal care are emphasized by our findings. This knowledge could be provided through the education of GPs, family doctors, nurses and midwives.

Our results from studies I and II suggest that depression may at times be conceived of as neurasthenia by the local population, and treated as such by TVM. Thus, it is possible that traditional medicine practitioners meet the needs of many patients with depression that are missed by the rest of the health care system. This underlines the importance of awareness of depression and perinatal depression also among TVM practitioners, and ensuring a well-functioning referral system between TVM practitioners and mental health practitioners. Thus, an awareness of the possible overlap between depression and neurasthenia could be provided through the education of TVM practitioners.

8.2 IMPLICATIONS FOR POLICY

In light of our findings and the findings of others, strategies for reducing the burden of depression should consider including the national sectors dealing with development, poverty reduction, human rights, social protection, violence prevention, education, and gender. Taking into account the social causation of perinatal depression, an interdisciplinary approach to set women's rights and issues regarding women's autonomy should be on the policy agenda. Our results could also be incorporated into national information campaigns regarding perinatal depression and its associations with birth outcomes.

8.3 IMPLICATIONS FOR RESEARCH

Through this thesis work we have explored a number of perspectives on perinatal depression, and in light of our findings the following research questions can be recommended:

- Information campaigns about depression should be developed and evaluated as to their effect on treatment seeking and stigma.
- The gender-based risk-factors for perinatal depression should be further evaluated in Vietnam through an epidemiological research design.

- Further studies about the risk-factors and outcomes of antenatal depression in Vietnam should take into consideration the relatively low prevalence rates of antenatal depression and low birth weight found in our study.
- Further exploration of the physiological link between antenatal depression and preterm birth is recommended so that the common antecedents can be addressed.
- The overlap between depression and local understandings of neurasthenia may be of interest for future research. Also, TVM treatments for neurasthenia could be identified and evaluated for effectiveness for depression treatment.
- The development of a treatment protocol for a mindfulness based intervention for the local population around the time of pregnancy, which takes into account our findings from studies II and III, and testing the treatment through a clinical trial is recommended. Outcome measures of such a clinical trial could be preterm birth, as identified through study IV, as well as other maternal and child health measures.

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