

**Postpartum depression, depressive symptoms and  
parental stress in mothers and fathers 25-30 months  
after child birth**

*A family perspective*



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**POSTPARTUM DEPRESSION, DEPRESSIVE  
SYMPTOMS AND PARENTAL STRESS IN  
MOTHERS AND FATHERS 25-30 MONTHS  
AFTER CHILD BIRTH**

*A family perspective*

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**Postpartum depression, depressive symptoms and parental stress in mothers and fathers 25-30 months after child birth: A family perspective**  
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## Abstract

Johansson, Maude (2019). *Postpartum depression, depressive symptoms and parental stress in mothers and fathers 25-30 months after child birth: A family perspective*, Linnaeus University Dissertations No 355/2019, ISBN: 978-91-88898-74-6 (print), 978-91-88898-75-3 (pdf).

The overall aim of this thesis was to explore the prevalence of postpartum depression and parental stress 25 - 30 months after delivery. The first study was conducted 25 months after delivery. The aims were to investigate the prevalence of postpartum depression and the associations between postpartum depression and parental stress in two areas of study; spouse relationship problems and feelings of incompetence in parenthood. Seven hundred mothers and 646 fathers answered a questionnaire. The results showed that the prevalence of depressive symptoms was more than 11% for mothers and nearly 5% for fathers and that parents with postpartum depressive symptoms experienced more feelings of incompetence and spouse relationship problems than parents without postpartum depressive symptoms.

The second study included 176 mothers and 146 fathers. The aims of the study were to determine the prevalence of postpartum depressive symptoms, and if parental stress and attachment style affected postpartum depression in mothers and fathers 30 months after birth. The prevalence rate of postpartum depressive symptoms in mothers was 14.9 %, while for fathers it was 11.5 %. We observed a difference with the preoccupied and fearful attachment style in terms of parents with postpartum depressive symptoms and parents without postpartum depressive symptoms. However, the differences were not significant. Furthermore, parental stress outperformed attachment styles as a predictor for postpartum depressive symptoms in both the mothers and the fathers.

Study III was a qualitative interview study explored the lived experiences of mothers and fathers, their experiences of postpartum depression, and parental stress. Five prominent themes were identified. Both mothers and fathers described experiences of inadequacy as the most stressful. Experiences of problems during pregnancy or a traumatic delivery contributed to depressive symptoms and anxiety in mothers, and affected fathers' wellbeing.

Thus, identifying depressive symptoms with the Edinburgh Postnatal Depressive Scale (EPDS), mothers described varying experiences of child health care support. Depressive symptoms seemed to affect the spouses' relationships. Experiences of emotional problems and insecure upbringing in the parents' family of origin may contribute to vulnerability that led to long-term problems for mothers.

The overall conclusion of this thesis was that postpartum depression and parental stress had a significant impact on the everyday lives and that postpartum depression does not seem to decline 25- 30 months after childbirth.

**Keywords:** Postpartum depression, Depressive symptoms, Parental stress, Child health care

## Sammanfattning

Det övergripande syftet med denna avhandling var att undersöka förekomsten av postpartum depression och föräldrastress 25 – 30 månader efter förlossningen. Den första studien genomfördes 25 månader efter förlossningen. Studien undersökte förekomsten av postpartum depression och föräldrastress hos 700 mödrar och 646 fäder. Förekomsten av postpartum depression var mer än 11% hos mödrarna och nästan 5 % hos fäderna.

Studien visade att föräldrar med postpartum depression upplevde mer föräldrastress samt känslor av inkompetens i föräldraskapet och relationsproblem i parrelationen än föräldrar utan postpartum depression. Studie II inkluderade 176 mammor och 146 pappor. Syftet med studien var att uppskatta förekomsten av postpartum depression, och om föräldrastress och anknytningsstil påverkade postpartum depression hos mammor och pappor 30 månader efter förlossningen. Förekomsten av postpartum depression hos mödrarna var 14. 9 % och 11. 5 % för fäderna.

Resultatet visade en skillnad, dock ej signifikant mellan anknytningsstilarna preoccupied och fearful, avseende föräldrar med postpartum depression och föräldrar utan postpartum depression. Föräldrastress överträffade dock anknytningsstil som prediktor för postpartum depression för både mammor och pappor. Resultat tyder på att depressiva symtom ökar efter det första året särskilt hos fäderna.

Study III var en intervjustudie som undersökte mammor och pappors erfarenheter av postpartum depression och föräldrastress efter förlossningen. Fem viktiga teman identifierades. Både mammor och pappor beskrev upplevelser av otillräcklighet, som mest stressande. Graviditetsproblem och / eller en traumatisk förlossning medverkade till postpartum depression och ångest hos mödrarna och påverkade fäderna negativt. Trots att Barnhälsovården identifierat postpartum depression med Edinburgh postnatal depression skalan (EPDS), erhöll mödrarna inte alltid stöd och behandling. Postpartum depression påverka relationen till maka / make och både mödrar och fäder beskrev relationsproblem till partner. Mödrar med emotionella problem och otrygghet i ursprungsfamiljen hade en ökad sårbarhet för depressiva symtom.

Den konkluderande slutsatsen var att depressiva symtom och föräldrastress hade en signifikant påverkan på föräldrarnas vardag och att PPD inte verkade minska 25–30 månader efter förlossningen.

**Nyckelord:** Postpartum depression, Depressiva symtom, Föräldrastress, Barnhälsovården

## LIST OF SCIENTIFIC PAPERS

I. \*Johansson, M., Svensson, I., Stenström., & Massoudi. P. (2017). Depressive symptoms and parental stress in mothers and fathers 25 months after birth. *Journal of Child Health Care* 21:1 65-73.

II. Johansson, M., Nordström, T & Svensson, I (2019). Depressive symptoms and parental stress; Is attachment the missing link? *submitted to Journal of Child Health Care.*

III. Johansson, M., Benderix.Y., Svensson, I. (2019) Mothers' and fathers' experiences of depressive symptoms and parental stress in the first years after childbirth: a qualitative study; *Submitted to International Journal of Qualitative Health and Wellbeing*

\*Due to copyrights rules of Sage, the accepted manuscript of the paper is included in the dissertation

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## PREFACE

“There is no such thing as a baby...  
if you set out to describe a baby,  
you will find you are describing  
a baby and someone”  
(Winnicott, 1947).

Becoming a parent is a life changing event. It is a point of no return demanding adaption and development by the parent to cope with the new role. In my clinical work as a psychologist I have had the opportunity to meet new parents and be a part of this transition with some parents. My clinical work has taught me a lot about the struggle to become, as Winnicott said “a good enough mother”. For my thesis, I have changed the quote to “good enough parent”, because the focus of my work is both the mother and the father. Although a common view of parenthood is one of happiness, I have learned a lot about the struggle to become a happy parent.

When I started my work in an infant unit in Child Health Psychiatry I learned from meetings with parents that what helped them was understanding more about themselves. This had an impact on them and resulted in changes in their baby’s behaviour and in their own wellbeing. These clinical experiences influenced my research area when I became a PhD candidate. My professional values reflect the clinical standpoint of putting the parents of small children at the forefront which is also the case in my research.

Working on this thesis has allowed me to focus time and energy on developing my knowledge and to highlight the situation of small children and their parent

## INTRODUCTION

The transition to parenthood is considered one of the most significant role transitions in the life of an individual (Deave, Johnson, & Ingram, 2008; Feeney, Hohaus, Noller, & Alexander, 2001; Matthey, Barnett, Ungerer, & Waters, 2000). For most parents this transition may comprise transient difficulties but for some the transition is severe, including postpartum depressive symptoms and parental stress. Much attention has been paid to the problem of postpartum depression in women and it is well-established that maternal depression is associated with an increased level of internalising and externalising psychopathology in their children (Brennan et al., 2000; Hudson & Rapee, 2005), with difficulties in family relationships and parental function (Hudson & Rapee, 2005; Lovejoy, Graczyk, O'Hare, & Neuman, 2000).

However, contemporary research has found that postpartum depression (PPD) in men is a significant problem, and the strong correlation of paternal postpartum depression with maternal postpartum depression has important implications for family health and well-being (Goodman, 2004).

Despite many international studies into postpartum depression, there is still a research gap in the knowledge about its prevalence and about parents' experience of support and treatment after the first postpartum year. The postpartum period usually includes the first year after childbirth, however in this thesis the concept of postpartum depression is used to describe the parent's depressive symptoms, 25–30 months after childbirth. This is due to using the Edinburgh PPD scale (EPDS) to measure PPD throughout the study. A theoretical

model is developed and proposed for understanding PPD and parental stress after childbirth.

## **The aims of the thesis**

This thesis is based on three studies originating from two independent projects. The overall aim was to study the life situation and psychological adaption to parenthood of mothers and fathers 25-30 months after childbirth. Most previous research has focused on the psychological wellbeing of the mothers or fathers during the first year after childbirth. Not much is known about the psychological wellbeing related to parenthood after the first years of childbirth in terms of the prevalence of PPD, their experience of parental stress and of support and treatment. This thesis pursues to contribute to the awareness and increase the knowledge of these issues.

In study I the prevalence of PPD in mothers and fathers 25 months after childbirth and the association between depressive symptoms and parental stress was examined. The association was based on two scales, feelings of Incompetence and Spouse relationship problems. Studies have found that parental stress in these areas have an impact on PPD and that mothers and fathers experience parental stress in different areas (Hildingsson & Thomas, 2014; Widarsson et al., 2013) and that the relationship between parental stress and depressive symptoms was evident for both mothers and fathers and more prominent for the mothers (Mothander & Moe, 2010).

In study II, the aims were to understand more about the development of PPD and Parental stress. The Swedish Parenthood stress Questionnaire (SPSQ) was used to examine parental stress using five sub-scales: feelings of Incompetence, Spousal relationship problems, Social isolation, Role confusion and Health. An additional aim was also to discover whether PPD is associated with attachment style 30 months after childbirth. Attachment style and PPD have been found to be connected in previous studies (Bifulco, Moran, Ball, & Lillie, 2002; Kerstis et al., 2016).

The third study was a qualitative interview study of parents who had experienced PPD and parental stress. The aims of this study were to understand the parents experience of PPD, parental stress and support for their PPD. The narratives of the parent's experiences were

added to the quantitative study to gain further knowledge of the concept of postpartum depression.

## **Overview of the thesis**

The first part of the thesis comprises background information including an overview of the concept of parental distress and a description of the context in which the parents live and are part of. Details of Swedish family policies, including parental leave, and the Swedish child health services (CHS) are also provided.

The next section clarifies the definition of postpartum depression (PPD) and explains the differences between PPD, depression and anxiety. This is followed by a section about the previous research, prevalence, screening and risk factors for PPD.

The third section includes a description of the concepts of parental stress (Abidin, R. R., 1990) attachment theory (Bowlby, 1977) attachment style (Ainsworth, M. S. & Bowlby, 1991) and a theoretical framework originating in systemic (Bertalanffy, 1968) and family theory (Schjødt, Egeland, & Andersson, 1994) explaining the transition to parenthood and the development of PPD and parental stress.

The fourth section includes a description of the methods used for the three studies and a summary of the findings. The results are discussed using a model including systemic and family theory that explains the development of PPD.

The fifth and final section includes details of the methodological strengths and limitations, the clinical implications and suggestions for future studies.

## **BACKGROUND**

### **Depression, Postpartum depression (PPD), Parental stress and Anxiety**

Approximately 10 % of pregnant women and 13% of women worldwide who have given birth, experience a mental disorder, primarily depression (The World Health Organization 2017). In developing countries this is even higher, and stands at 15.6% during pregnancy and 19.8% after childbirth (World Health Organization, 2017).

The focus on parental health has mostly concerned mothers but in the last decade there has been more interest and research concerning the health of fathers. An international review concluded that PPD in men is a significant problem and has a strong correlation with maternal PPD and thereby has important implications for family health and wellbeing (Goodman, 2004).

In Sweden, depression and anxiety are common. The Swedish National Board for Health and Welfare predicted that 19% of the population will at some point during their lives be diagnosed with depression and that 36% of the population have experienced worry and anxiety (Socialstyrelsen, 2017). Of the people on sick-leave due to mental health issues, 90% were diagnosed with depression or anxiety (Vingård, 2015). The National Board of Health and Welfare has shown that less than half of primary care services can actually meet the care needs of these patients (Socialstyrelsen, 2017).

The relationship between PPD and parental stress has emerged in several studies, evidencing the influence of the individual and family

variables on quality affective relations (Gelfand, Teti, & Radin Fox, 1992; Milgrom, Ericksen, McCarthy, & Gemmill, 2006). T

The research into anxiety in parents after childbirth is not as common as that into PPD. Although a review found that anxiety disorders are common during the perinatal period, with reported rates of obsessive-compulsive disorder and generalised anxiety disorder being higher in postpartum women than in the general population (Ross & McLean, 2006).

Another study found that pregnancy-related anxiety and general anxiety, neuroticism and vulnerability in early pregnancy predicated parental stress at 2-3 months and 2-3 years after childbirth (Saisto, Salmela-Aro, Nurmi, & HalmesmÄäki, 2008). Anxiety and depression overlap extensively at the level of symptoms and disorder. It is usual for anxiety and depression to co-occur and it is also common to observe correlations between commonly used measures of anxious and depressive symptoms (Clark & Watson, 1991).

International prevalence studies place PPD during the first year after childbirth at about 10-20% in mothers (Massoudi, P., Hwang, & Wickberg, 2016; O'Hara & Swain, 1996) and in a review of PPD prevalence for fathers, at between 1.2% - 25.5% (Goodman, 2004). Maternal depression has been identified as the strongest predictor of paternal depression during the postpartum period (Gavin et al., 2005; Goodman, 2004; Paulson & Bazemore, 2010).

The transition from identity as an individual to identity as a parent requires adaptation and flexibility in both the mother and father but also as a couple. In this perspective, it is helpful to understand the wider context of the development of mental health problems in both parents after the first years of childbirth. How are parents later in parenthood? From this standpoint I aim to put parental mental health after childbirth in the foreground by conceptualising the most common problems affecting them. I begin by describing Swedish family policy and the Child Health Services (CHS) because they both have an impact on Swedish parents especially in supporting those affected by PPD or other mental health issues.

## Swedish family policy

Sweden is one of the most gender equal countries in the world. The Swedish social democratic welfare state, like the other Nordic welfare states, recognized access to reliable childcare as a basic requirement of a society in which the majority of both parents work outside the home. The state was thus prepared to provide working mothers and fathers with the services needed to allow them both to work in the labour market. This constitutes a crucial gender equality element that distinguishes the Nordic social democratic welfare states from other European welfare states.

The Swedish social democratic welfare state, like the other Nordic welfare states, recognized access to reliable childcare as a basic requirement of a society in which the majority of both parents work outside the home. The state was thus prepared to provide working mothers and fathers with the services needed to allow them both to work in the labour market. This constitutes a crucial gender equality element that distinguishes the Nordic social democratic welfare states from other European welfare states.

For many decades, Swedish family policy has been important in supporting mothers and fathers in their role as parents. Sweden is one of the most gender-equal countries in the world (Earles, 2011) with a welfare state and family policy that aims to support the individual and a gender-equal society (Haas, 2012). To facilitate this, the Swedish government has created rights and welfare benefits that allow parents to take parental leave; after becoming a parent of 480 days, to care for a sick child with economic compensation, to reduce parents working hours and subsidised day-care. To increase the father's early participation in childcare fathers, have a parental leave policy guarantees of 90 days, with the option of splitting any remaining days between either parent.

In recent decades the norm of the 'good father' has changed considerable, with the ideal being an involved father and a child-oriented fatherhood (Evertsson, Boye, & Erman, 2018). Sweden

women has traditionally and is still engaging more in domestic chores and childcare than Swedish men which is most obvious during the first years of parenthood (Alsarve & Boye, 2012). Women take most of the parental leave and they also work part-time more often than men during their children's pre-school years. This has consequences for their positions at work and also affects how they share the domestic work (Dribe & Stanfors, 2009). It seems that after having a first child the couples household division becomes a more gender typical division between home and paid labour (Ahme & Roman, 1997).

Research indicates an association between a father's share of the parental leave and the financial and human capital resources of mothers and fathers. Where the father has a higher relative income, this is partially associated with his reduced share of the parental leave. Where the mother has a higher level of education this is associated with the father taking a greater share of the parental leave (Farah, 2011).

A research review by Weitoft, Hjern, Haglund, & Rosén (2003) found that women's total workload appears to be somewhat greater than that of men which may adversely affect women's health, especially in the presence of certain role characteristics such as previously having held a professional or executive position. A heavy workload may also undermine marital happiness, particularly if there is perceived inequity in the way partners share household tasks. Recent research in Sweden shows variations in the length of parents leave, and the reasons given are work-related. The fathers' parental leave is also related to the long-term division of childcare with fathers who take more of the parental leave also taking more part in the childcare. Most parents felt that equal parenting is important, however, certain ideals of motherhood stood in the way of achieving this (Evertsson et al., 2018).

To recognize and understand the depressive symptoms and parental stress experienced by mothers and fathers with small children and the various factors that can contribute to health problems it is important to take an individual perspective as well as a general one as the context in which the parents live. Transitioning to parenthood is a psychological and developmentally complex process requiring adjustment in both the mother and the father. The birth of a child often

results in profound changes in lifestyle, spousal relationships and identity.

Several studies have pointed out that childbirth and the transition to parenthood are stressful events associated with parental stress, symptoms of depression and negative child outcomes (Pinheiro et al., 2006; Sepa, Frodi, & Ludvigsson, 2004; Östberg, 1998). Families generally approve of the Swedish CHS due to their high levels of competence in child development and the free health services offered to all parents of children up to the age of six.

## **The Child Health Services (CHS)**

The Child Health Services (CHS) have come to play an important role in public health in Sweden because they provide a general health surveillance programme which includes the assessment of; physical, social, and emotional health, the developmental progress of children, intervention when necessary, immunizations, health education and postnatal parental education during a child's first year (Rikshandboken, 2014).

The degree of parental participation varies between fathers and mothers but traditionally it has been very high. The CHS in Sweden is organized by county and in teams, including a paediatrician, a coordinating nurse and a consultant psychologist. In September 1999 the CHS was the subject of a state-of-the-art conference, which established the identification of new paths towards the prevention of mental health problems due to advances in psychological and social research. The medical profession, claimed that the work and methods of the CHS should be evidence-based (Sundelin & Håkansson, 2000).

They stated that the home visitation programme should be strengthened and developed based on applied attachment theory. They also suggested that a long-term relationship with a child health nurse would be of particular value to parents with experience of insecure attachments because it would support them in their role as parents and strengthen their parental competence (Sundelin & Håkansson, 2000).

The CHS shifted the aim of the services towards a more supportive role for parents while focusing on the child's development and behaviour.

In 2000, the Swedish National Council for Medical Research recommended that the CHS should focus on the child's first two years and especially on the parent-child interaction. They suggested that post-partum screening should be included in their services. The focus on detecting deviations in children was abandoned in favour of a health perspective that includes mobilising the parents' resources, trusting in their skills and competence and targeted measures of support for children and families with special needs (Sundelin & Håkansson, 2000). In the late 90s several studies concluded the importance of early screening for PPD in mothers after childbirth because the CHC in Sweden had previously only routinely identified a small number of cases. They also recommended the use of the EPDS as a screening measure (Bågedahl-Strindlund & Börjesson, 1998; Wickberg, & Hwang, 1997).

## **Postpartum depression**

Depression after childbirth is known as postpartum depression (PPD) or postnatal depression (PND) and is typically distinguished from postpartum blues (mild and transient) and from postpartum psychosis, which is a rare, acute psychotic episode that starts in the first two weeks after delivery. PPD is a disturbance in mood common in the first weeks after childbirth (O'Hara, & Wisner, 2014). In the literature PPD is defined as an episode of major depressive disorder although it sometimes includes minor depression and occurs in the postpartum period. In the Diagnostic and Statistical Manual of Mental Disorders, fourth edition specifies that the episode of depression begins within four weeks of childbirth and DSM-5 refers to an episode that begins within six months of delivery (DSM-V-tr, 2000). The changes to the window for PPD onset have been extended because studies conducted subsequent to DSM-IV show that the period of elevated risk following delivery extends to six months in unipolar depression (Forty et al., 2006).

In clinical practice the timeframe used to define the postpartum period goes up to the first year after delivery. The many different types of depression vary in character and severity, but PPD and PND have the same symptoms as the depression that can occur at other periods of life (O'Hara, & Wisner, 2014; Whiffen, 1992). The

differentiator is that the woman is more susceptible to the depression that occurs in the period just after giving birth and the transition to parenthood due to it being a particularly challenging time because of the other demands on her such as expectations on motherhood and parenting.

Postpartum depression may also cause the mother to reduce the time she spends with the dependent baby and affect their ability to interact and create a secure attachment (Field, 2010). For mothers, a wide range of psychological reactions are included in the definition of PPD, such as anxiety, worry, stress, and vulnerability. The dominant characteristics of postpartum depression are lower mood each day, feelings of guilt and of being an insufficient parent, feelings of emptiness and of not recognising oneself (Norhayati, Hazlina, Asrenee, & Emilin, 2015).

Usual reactions include difficulty in concentrating and making decisions, disturbances in eating and sleep patterns not caused by the child, extreme tiredness and a lack of energy. Some women experience a sense of losing control of their lives, which can contribute to feelings of increasing anger, panic attacks and tantrums (Leahy-Warren & McCarthy, 2007; Norhayati et al., 2015). At the core of depression there is often a feeling of hopelessness about life. There is no univocal evidence regarding the classification of PPD and no general agreement in the literature about its occurrence and length.

The scientific literature and research on PPD has identified many predictive factors such as a history of depression, life events, and an absence or lack of social support (O'Hara and Swain (1996). For many years the research suggested that antenatal depression and PPD mainly affected the mother, because she represented the most important caregiver in the early life of the child. However, the parental role has changed and fathers are now more involved early in the child's life (Duvander, Lappegård, & Andersson, 2010; Haas & Hwang, 2008).

In the last few years there has been an increase in the number of studies into the psychological reactions of fathers. Researchers indicate that depressive symptoms and parental stress are also prevalent in fathers. The studies show that fathers are as well as the mothers affected by the same types of mood alteration during the transition to parenthood and that their mental health has an important

impact on the child's development and the health of the family (Goodman, 2004; Ramchandani, Stein, Evans, & O'Connor, 2005). However, the studies found it difficult to identify the father's PPD (Massoudi et al., 2016; Psouni, Agebjörn, & Linder, 2017; Ramchandani et al., 2005).

Their findings reveal that the methods used for mothers are not suitable for fathers because they display different symptoms as; irritation, lower stress tolerance and a lack of self-control (Psouni et al., 2017). Traditionally, definitions of depression include symptoms of low mood, sadness and a lack of energy and screening instrument for postpartum depression identifies these signs in the mothers.

## **The prevalence of Postpartum depression in mothers and fathers**

Estimates for the prevalence of PPD are wide ranging because of the varying criteria, the period of time under consideration, and the population (O'Hara and McCabe (2013). Prevalence studies in this area have been done well and include a large number of participants, although their findings reflect the variability in the definitions of PPD and its estimated prevalence in developed countries. An international meta-analysis carried out in the late 1990's on prevalence studies in PPD reported an overall prevalence of PPD of 13% in mothers (O'Hara & Swain, 1996).

An international review that included interview assessments of PPD in mothers, measured the prevalence of minor and (major) depression. Estimates from the meta-analyses range from 6.5% to 12.9% (1.0-5.6%) at different trimesters of pregnancy and in different months during the first postpartum year. The combined period prevalence shows that as many as 19.2% (7.1%) of women had a depressive episode (major depressive episode) during the first three months postpartum; most of these episodes have onset following childbirth (Gavin et al., 2005). The confidence interval was large leading to uncertainty about the rate of depression across the postpartum period and whether PPD is more common during this period than at other times in a woman's life (Gavin et al., 2005).

Studies that document depression in prenatal fathers and during the first postpartum year are rarer than studies into PPD in mothers.

However a meta-study of fathers found that pre- and postpartum depressive symptoms were evident in about 5-10% of them (Paulson & Bazemore, 2010).

PPD in fathers was found to be closely related to maternal PPD, and maternal depression was identified as the strongest predictor of paternal depression during the postpartum period (Goodman, 2004; Schumacher, Zubaran, & White, 2008). A review found the incidence of paternal depression ranged from 1-25% in community samples, and from 24-50% among men whose partners were experiencing PPD during the first postpartum year.

Studies in the United Kingdom (UK), Brazil and the United States (US) reported rates in fathers after childbirth at between 4 and 12% depending on self-measures or diagnostic interviews (Paulson, Dauber, & Leiferman, 2006; Pinheiro et al., 2006; Ramchandani et al., 2005). The most recent meta-analysis published in 2016 reports an estimated rate of paternal depression from pregnancy through the first postpartum year of 8.4% (CI):7.2-9.9% with a significant degree of heterogeneity in the reported rates, due to differences in multiple aspects of the methodology, timing, instruments etc. (Cameron, Sedov, & Tomfohr-Madsen, 2016).

The research regarding the prevalence of PPD in mothers and fathers seems to vary widely in its findings because of differences in inclusion criteria, the period of time under consideration and populations. This causes uncertainty about the rates of depression in the postpartum period and whether PPD is more common in this period than at other times for both men and women.

Some studies have been carried out in Swedish communities. In the late 90's there was a prevalence study based on a community sample of 1584 women who were screened at eight and 12 weeks postpartum using the EPDS. The point of prevalence of depression, using a threshold of 11/12 on the EPDS, was 12.5% at eight weeks and 8.3% at 12 weeks postpartum (Wickberg, & Hwang, 1997). Two studies carried out at the beginning and in the middle of the 2000s, showed that prevalence in women was high (EPDS  $\geq$  12) 13.7% in pregnancy, 11.1% at two months and 13.7% one year after childbirth (Rubertsson, Wickberg, Gustavsson, & Rådestad, 2005). The other study showed that the prevalence of depressive symptoms during late pregnancy was 17%; in the maternity ward 18%; 6–8 weeks

postnatally 13%; and six months postnatally, 13%. (Josefsson, Berg, Nordin, & Sydsjö, 2001).

The conclusion from these studies is that there is a correlation between antenatal and postnatal depressive symptoms ( $r=0.50$ ,  $p<0.0001$ ). The latest prevalence study includes 885 mothers and their partners and found symptoms of depression in 6.3% of the fathers and 12% of the mothers (EPDS  $\geq 12$ ) three months after delivery (Massoudi, P. et al., 2016). The prevalence at 25 months in the same population was 11.3% of mothers and 4.9% of fathers (Johansson, Svensson, Stenström, & Massoudi 2017).

Most studies of PPD in parents have been conducted from two to three months after delivery up to the child's first year and include either the mothers or fathers. Research into parents with depressive symptoms and parental stress in a population-based sample after the first year of childbirth that includes both the fathers and the mothers is scarce. However, there are a few studies that include younger children which demonstrate the importance of good mental health in both parents for supporting the parent-child relationship (Goodman 2004; Cuijpers, Weitz, Karyotaki, Garber, & Andersson 2015). The available reports indicate that parental stress and depressive symptoms are also related to caregiving in families with toddlers and older children (Goodman, 2004). A Swedish study found that women with a history of PPD were approximately six times more likely to have recurrent depressive symptoms (Josefsson & Sydsjö, 2007).

## **Screening for Postpartum depression**

The high prevalence of PPD and the greater risk of negative consequences for the child (Pawlby, Sharp, Hay, & O'Keane, 2008) underlie the decision to screen mothers for PPD. As a general recommendation, The World Health Organization has proposed some principles for screening, as follows: The condition sought should be an important health problem, there should be an accepted treatment or useful intervention with more benefits from starting the treatment early, there should be a suitable and acceptable screening test and screening should be a continuous process (Wilson & Jungner, 1968).

Although there are good intentions behind the idea of screening all new mothers using EPDS, it has been questioned by some authors

who argue that it is unethical, intrusive and unsatisfactory (Shakespeare, Blake, & Garcia, 2003). While there is some criticism of universal screening it is mandated in many countries including Sweden. A study of best practice for PPD screening concluded that there was a good correlation between early and late EPDS scores in low risk women and that these women may not need to be rescreened. It proposed to rescreen only those women with a psychiatric history, anomaly preterm delivery and EPDS-score of ten or more (Knights, Salvatore, Simpkins, Hunter, & Khandelwal, 2016).

One study demonstrated that without having the appropriate training, detection and treatment of postnatal depression in primary care using screening with EPDS did not improve detection rates (Murray, Woolgar, & Cooper, 2004). EPDS is widely used in the UK and other countries with similar level of health care system. In the UK following childbirth all infants and all mothers receive individual care from a specialist community nurse known as a health visitor (Brugha, Morrell, Slade, & Walters, 2011).

Systematic screening for PPD in all new mothers using EPDS method is recommended in Sweden by National Board of Health and welfare. In Sweden, EPDS was introduced to increase the discovery of mothers at risk of depression and to create a functional care-chain for mothers with depressive symptoms. The child health nurses were educated appropriately both in screening and interventions. This increased the identification of mothers with depressive symptoms to almost 5% during the first year of screening (Wickberg, & Hwang, 2003). This screening has increased the awareness of PPD in mothers and also in fathers even though their screening is not routine.

The knowledge and awareness of perinatal mental health disorders in parents in CHC has also been improved with education and counselling for CHC nurses who support mothers with PPD. As PPD is the most common mental ill health states affecting a mother's wellbeing, interaction with the child and family relationships is particularly important for the CHC to understand how the symptoms are manifested, especially as PPD can be displayed with symptoms hard to detect.

## **Risk factors for Postpartum depression**

The risk factors for mothers developing PPD have been identified from meta-analyses of over 14,000 subjects, and subsequent studies of almost 10,000 additional subjects. The following factors are the strongest predictors of PPD; depression or anxiety during pregnancy, experiencing stressful life events during pregnancy or early puerperium, low levels of social support and a previous history of depression (Robertson, Grace, Wallington, & Stewart, 2004).

The risk factors for PPD in fathers after childbirth are not as prominently covered in the research field. A longitudinal study of prenatal depression in fathers predicted a greater degree of severe depressive symptoms among mothers in the postpartum period (Paulson & Bazemore, 2010). It also found that a history of severe depression or anxiety in fathers was the strongest predictor of maternal PPD (Goodman, 2004) and that the severity of the mothers' PPD affected the fathers' PPD (Pinheiro et al., 2006).

Another study found that marital dissatisfaction and partner's depression and depression during pregnancy increased the probability of depression during the first 12 months after birth in mothers and fathers has an impact on PPD (Escribà-Agüir & Artazcoz, 2011). Finally that antenatal depression was the strongest predictor of postnatal depression, and in turn postnatal depression was the strongest predictor for parenting stress (Leigh & Milgrom, 2008). In studies of mothers in Sweden the risk factors associated with depressive symptoms are two or more stressful life events in the year prior to pregnancy, speaking a native language other than Swedish and unemployment. (Rubertsson et al., 2005).

Another study found that the greatest risk factors for PPD in mothers is sick leave during pregnancy and many visits to the antenatal care clinic (Josefsson et al., 2002). New fathers in their twenties seem to have an increased risk of depressive symptoms which cannot be explained solely by socioeconomic factors (Bergström, 2013). Finally another study found that the strongest correlates of depressive symptoms in fathers are problems in the partner relationship, a low educational level, previous depression, stressful life events and low partner support (Massoudi et al., 2016).

Becoming a parent is challenging in itself so being affected by PPD puts the parents and family under great stress which has an impact on the parent and the parenting (Hoffman, Dunn, & Njoroge, 2017). The Parenting Stress Index (Abidin, 1990) is a useful instrument for describing the areas that affect mothers and fathers with PPD and is widely used in research. This index integrates a range of variables that are believed to be central to the role of parenting into a model that regards stress as the central construct leading to dysfunctional parenting (Abidin, 1990).

## **Parental stress**

The concept of parental stress is described as a perceived discrepancy between the demands pertaining to the parental role and personal resources (Östberg, Hagekull, & Hagelin, 2007). Österberg et al. evaluated and adjusted the Parenting Stress Index to Swedish conditions (Östberg, Hagekull, & Wettergren, 1997).

The Swedish Parental Stress Scale (SPSQ) has been widely used to identify parental stress in mothers and fathers in Sweden and also internationally. The differences between mothers and fathers parental stress have not been sufficiently investigated, although some gender differences have been found. Two Swedish studies concluded that mothers and fathers experience stress in different areas during early parenthood and that mothers experience higher level of stress and in more areas than fathers (Hildingsson & Thomas, 2014; Widarsson et al., 2013; Mothander & Moe, 2010). In the mid 2000s Hammen (2005) stated, that there is a robust and causal association between stressful life events and major depressive episodes (Hammen, 2005).

In contemporary research there is a growing interest in moving away from unidirectional models of an association between stress and depression, towards a recognition of the effects of contexts and personal characteristics on the occurrence of stressors. There is also interest in understanding the likelihood of progressive and dynamic relationships between parental stress and depression over time including the effects of childhood and lifetime stress exposure on later reactivity to stress.

To understand a depressives' symptoms and parental stress it is useful to have a diathesis-stress perspective for a vulnerability or a

predisposition that can take the form of genetic, psychological, biological, or situational factors (Ingram & Luxton, 2005). The diathesis-stress model includes the relationship between potential causes of depression and the degree to which people may be vulnerable to react to those causes.

The diathesis-stress model suggests that people have different degrees of vulnerability and predispositions for developing depression. Bowlby (1973;1988) said that diathesis can be a predisposition factor or a set of factors that make a disordered state possible and that diathesis-stress emerges in stressful interpersonal contexts. How the individual responds to a stressful event/situation depends on the persons earlier attachment style and history.

## **Attachment theory**

Attachment theory developed in part to explain the origins of depression and other psychological disorders (Bowlby, 1980). The diathesis-stress model interacts with the individual's subsequent stress response. Stress can be a life event or a series of events that disrupt a person's psychological equilibrium and may catalyse the development of a disorder (Oatley, Keltner, & Jenkins, 2006).

Thus the diathesis-stress model serves to explore how biological or genetic traits interact with environmental influences to produce disorders such as depression, anxiety, or schizophrenia (Oatley et al., 2006). The diathesis-stress model asserts that if the combination of the predisposition and the stress exceeds a threshold, the person will develop a disorder (Lazarus, 1993). Bowlby (1969/1977) claimed that increases in depressive symptoms mostly occur when vulnerable people with insecure attachment styles experience stressors that test and strain their relationships. Such experiences can increase the depressive symptoms by enhancing negative beliefs about the self as being unworthy of love and support or by accentuating negative beliefs about others as being unloving and unsupportive partners. In contrast, attachment security seems to serve inner feelings that facilitate the adjustment to stressful life events and buffers the individual from experiencing depressive symptoms (Mikulincer & Florian, 1998).

Attachment theory suggests that a child who has had repeated positive experiences with a caregiver, develops a secure attachment to that person and that children who are securely attached have learned to trust that other people will take care of them. Children whose experiences with a caregiver are negative or unpredictable are more likely to develop an insecure attachment. Children who are insecurely attached have learned that adults are not reliable and therefore, they cannot be sure that the adults will take care of them. The child can then develop ways to handle this insecurity through a specific attachment style.

## **Attachment Style**

Ainsworth innovated a methodology (the strange situation) from Bowlby's theory and made it possible to test Bowlby's ideas empirically and also expand the theory (Ainsworth, & Bowlby, 1991). Ainsworth contributed the concept of a secure base from which the child can explore its surroundings and develop maternal sensitivity which is the caregiver's sensitivity to signals from the infant. Ainsworth said that these two concepts play an important role in the development of infant-mother attachment patterns.

A series of basic attachment styles has been described for infants and adults; for infants using Ainsworth's Strange Situation (Ainsworth, Blehar, Waters, & Wall, 2015), and for adults, using Main's Adult Attachment Interview (AAI) (Main & Solomon, 1990) as well as various self-report measures (Griffin & Bartholomew, 1994; Shaver & Hazan, 1993). Ainsworth claimed that children have different patterns of attachment style depending on how they experience their early caregiving environment. She identified four different attachment styles for children and adults: Secure and insecure attachment, anxious-ambivalent attachment, anxious-avoidant attachment and disorganised attachment.

Previous research has shown that insecurely attached people were more prone to depressive symptoms. In studies of people assessed using the adult attachment interview (George, Kaplan & Main, 1996), individuals with unipolar depression were found to be more prevalent among psychiatric patients classified as preoccupied (a category conceptually related to the anxiety-ambivalence attachment

dimension) than among patients classified as secure-attached (Cole-Detke & Kobak, 1996; Fonagy et al., 1996; Rosenstein & Horowitz, 1996).

Depression was also more prevalent in people who self-report as being more insecure using romantic attachment scales. Those categorised as avoidant and anxious-ambivalent, score higher on a DSM-III measure of major depressive episodes than secure people (Mickelson, Kessler, & Shaver, 1997). Adults with an anxious-ambivalent attachment style report the highest levels of depressive symptoms, secure individuals the lowest, and avoidant persons fall somewhere in between (Cooper, Shaver, & Collins, 1998). Women with preoccupied-ambivalent or fearful-avoidant attachment styles were particularly vulnerable to depression (Carnelley, Pietromonaco, & Jaffe, 1994).

In conclusion the above mentioned studies, indicate that adults with an insecure attachment style, particularly those who are preoccupied or anxious-ambivalent are at an increased risk of depressive symptoms. Research has also found that depression tends to be more prevalent in persons classified as earned secure, that is adults who have overcome adverse childhood experiences with their attachment figures and are on the road to becoming secure (Pearson, Cohn, Cowan, & Cowan, 1994).

Attachment may be particularly important during the transition to parenthood as it seems that those who have positive models to turn to for support do so, while those with more negative views of others may withdraw, reducing the availability of support (Larose & Boivin 1998). Within couples, the attachment of one partner may affect the psychological adjustment of the other partner (Berman, Marcus, & Berman, 1994). Both secure attachment and social support have been found to buffer individuals against stressful situations (Ditzen, Hoppmann, & Klumb, 2008).

Alternatively, attachment may have a direct relationship with postpartum symptoms, irrespective of perceptions of support.

PPD and parental stress in the transition to parenthood is a complex condition. Previous research concludes that it can be understood as a problem in the individual, but many of the risk factors also relate to problems within the relationship of couples and in their environment.

Therefore, a theoretical framework that includes the diathesis-stress approach with a systemic and family theoretical focus is used to connect the family unit with the various risks and protections associated with PPD. This makes it possible to understand more about the factors that contribute to PPD in mothers and fathers.

## **Systemic theory**

General system theory (GST) was proposed by Ludwig von Bertalanffy (1968). It is a general theory, applicable to all systems in order to understand how an organism works. Systemic theory includes concepts such as the whole, context, relation and pattern. Systemic theory is more complex in relation to cause and effect as it stipulates that the different parts of a system cannot exist by themselves as they always have an impact on each other in a process.

GST is applicable to family-oriented theory because the family can be seen as a social system. One axiom of systemic theory is that the whole is greater than the sum of its parts. Bertalanffy (1968) was key to developing systemic theory for use and development in family theory and family work. He said we should study the transaction process and the interaction between the components in the system (the family) and notice any emerging patterns and the organised relations between the parts (Bertalanffy, 1968). The complexity of transactional developmental processes has been widely discussed by theoreticians (Bronfenbrenner, 1979).

According to Vassiliou (1973), the term interaction implies a reciprocal, bilateral influence of processes and transactions implying that two processes are in a reciprocal, bilateral interchange according to which process "A" changes process "B" while simultaneously it is changed by "B" (Vassiliou, 1973). In the family context this means that a parent with depression can affect the mental conditions of the spouse and child, and the spouse and child can affect the depressed parent.

The General system theory (GST) as an overall framework may be useful for describing the development of PPD as a consequence of parental stress and the strains of life. In GST the family can be understood as an organised system with a hierarchical structure and subsystems with their own adaptive self-stabilisation referring to

homeostatic features of systems that compensate for changing conditions in the environment by making changes in the system, complementary to the notion of self-stabilisation. This refers to the ability of open, living systems to adapt to changes or challenges to the existing system (Bertalanffy, 1968). From this perspective the family may be viewed as a system or a “complex, integrated whole” wherein the individual family members are necessarily interdependent, and exert a continuous and reciprocal influence on one another (Minuchin, 1988).

## **A theoretical framework for PPD in the transition to parenthood**

There is no shortage of research and theoretical frameworks for PPD from an individual perspective. However, despite PPD often being seen as a family affair the research is non-existent regarding a theoretical framework that can be applied to the family in CHC (Burke, 2003; Letourneau et al., 2012). In this thesis, the ambition is to create a bridge from an individual theoretical perspective to a multivariate perspective for understanding the development of PPD and for its assessment and treatment. This requires the use of more than one theoretical framework. To describe the development of PPD in this thesis, the theoretical framework includes systemic family development theory and attachment theory and a diathesis stress perspective.

Abidin (1990) highlights the need for a dynamic multivariate model to understand the cause of parenting stress and its impact on parenting behaviour and child outcomes. In this thesis, parental stress (incompetence, spousal relationship problems, social isolation, role diffusion and health) is used as a contributor to PPD. As Abidin (Abidin, 1990) was mainly interested in factors influencing parenting behaviour the theoretical framework must be expanded to include the individual parents’ resources, and a systemic approach to family transition and development to further explain the development of PPD.

The model moves away from a traditionally psychological perspective, which essentially focuses on individual family members,

to a systems level focus and a dynamic family perspective with emphasis on interactions and transactions.

The aim of this model is to replace the individual perspective with a family perspective and to understand the processes by which individuals and families adapt successfully to the challenges that confront during the transition into parenthood or, alternatively, become dysfunctional.

## **Family development theory**

From a systemic perspective, the development of the family can be described as a commute between changes of the first and second order. Changes in the first order mean adjustments and changes to the system without fundamental structural changes. Changes of the second order mean qualitative and discontinued changes including structural, for example the transition from being in a couple to becoming parents (Schjødt et al., 1994).

To become a parent means getting new tasks and new roles. Research into wellbeing and the transition to parenthood suggests that one factor that seems to affect the individual and marital wellbeing among new parents is role congruence (Cast, 2004).

Parental role congruence, according to Cast (2004) refers to the amount of agreement between mothers and fathers regarding their respective roles as parents in the family. Some researchers have considered the identity processes underlying the relationship between role congruence and the individual and marital wellbeing (Pasley, Kerpelman, & Guilbert, 2001). The identity theory approach recognises the family interactions and offers explanations for why role congruence is important for understanding the individual and the marital wellbeing of new parents (Maurer, Pleck, & Rane, 2001; Pasley et al., 2001). Cast (2004) found that role congruence reflects the degree to which individuals can verify their identities and says that new parents who are unable to verify their parental identity are more likely to experience a decline in individual and marital wellbeing.

Several studies identified several risk factors that apply in transition to parenthood. In a longitudinal study of both mothers and fathers the psychosocial and personal factors were found to be strong predictors

of depression during the first 12 months postpartum for both mothers and fathers (Escribà-Agüir & Artazcoz, 2011).

Studies have also found that attachment and impaired bonding showed a correlation with depressive symptoms and the prevalence was highest among couples in which both spouses have depressive symptoms. Impaired bonding has also been associated with higher EPDS scores in both mothers and fathers, as well as with experiencing a deteriorated marital relationship and low support from the spouse (Kerstis et al., 2016; Simpson, Rholes, Campbell, Tran, & Wilson, 2003).

## **METHODS**

This thesis examines the results from two research projects that aim to investigate PPD, parental stress, attachment style and the experience of support and treatment in mothers and fathers of a 25-30-month-old child. Study I is the final wave in a longitudinal study investigating the prevalence of PPD at three, six and 25 months. Studies II and III are new studies, including both quantitative and qualitative methods.

### **Participants**

The three studies use two different samples and different inclusion criteria. The first study includes parents recruited from CHC when their child was three months old. The parents completed a questionnaire including the EPDS and the Swedish Parental Stress Questionnaire (SPSQ) when their child was three and six months old (Massoudi, P. et al., 2016). In study I, the final data collected for this sample was when the child was 25 months old. The sample includes 700 mothers and 646 fathers and 583 couples.

Studies II and III collected new data, recruited from the CHC during a two-and-a-half-year period.

In study II, all parents with a 30-month-old child, were asked to participate in the study when they visited the child health nurse. On this occasion, the nurses asked the parents to participate in the study by completing a questionnaire at home, which included the EPDS, the SPSQ and the relation questionnaire (RQ) as well as background information. The completed questionnaires were returned to the

researcher. The study consisted of 179 mothers and 147 fathers, of these, 127 were couples.

In study III, the inclusion criteria for participants were mothers and fathers who had experienced depressive symptoms and parental stress after childbirth and who had agreed to participate and talk to the researcher about their experience during an interview (therefore, they had to supply their contact details). 15 parents, consisting of ten mothers and five fathers, were contacted for being interviewed.

## **Instruments**

In study I the Edinburgh Postpartum Depression Scale (EPDS) was used. The EPDS is a ten-item screening scale used in primary health care to identify symptoms of PPD (Cox, Holden, & Sagovsky, 1987). This scale has been validated in Swedish studies for both mothers (Wickberg & Hwang, 1996) and fathers (Massoudi et al., 2013), and suggests a cut-off score of 12 points or more as being indicative of depressive symptoms. The EPDS is by far the most commonly used questionnaire in clinical context for identifying PPD (Hewitt, Gilbody, Mann, & Brealey, 2010).

The screening procedure should always include a talk about clinical assessment, and mothers with major depression scores (EPDS  $\geq$  12) should be referred to a psychiatric or clinical psychologist (Wickberg & Hwang, 2003). The EPDS has been used internationally (Matthey et al., 2000; Paulson & Bazemore, 2010; Ramchandani, P. G. et al., 2008) including in Swedish studies (Kertis, 2015; Wickberg, & Hwang, 1996; Widarsson et al., 2013).

Two scales were used from the SPSQ; feelings of incompetence and spouse relationship problems. The SPSQ was adjusted to Swedish conditions by (Östberg, et al, 1997) and the original was developed by Abidin (Abidin & Jack, 1995).

In study II the EPDS was used and all the scales in SPSQ which includes questions about parental stress to measure different aspects of their perceptions of stress in their parental roles, questions about their general experience of caregiving, questions about their feelings towards their parental role, and statements about parenthood difficulties. The SPSQ items were scored on a 5-point Likert-type scale in which each parent was asked to state the extent to which they

disagreed =1 or agreed =5 with each statement. A higher score indicates a higher level of stress. The SPSQ contains five subscales; Feelings of incompetence, which contains statements about parent's feelings and difficulties in parenthood, such as "I don't feel that I am a good parent". Spouse relationship statements are also included, such as "more problems in partner relationship since becoming a parent".

The social isolation section refers to issues concerning friends and family and health problems refers to physical problems. The restriction of role section contains questions about role conflicts after becoming a parent. The SPSQ has been found to be stable in both non-clinical and clinical Swedish samples

We also include the relation questionnaire (RQ) to examine the parent's attachment style. The RQ questionnaire is an instrument that measures adult attachment (Griffin & Bartholomew, 1994). The RQ has four categories of attachment style (secure, avoidant, preoccupied and fearful) and each question is scored on a 7-point Likert-scale. In this study, we use the mean for each RQ subscale. The following descriptions characterise the secure attachment style: It is easy for me to become emotionally close to others; I am comfortable depending on others and having others depend on me; I do not worry about being alone or having others not accept me.

The following descriptions characterise the preoccupied attachment style: I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others do not value myself as much as I value them. Avoidance attachment style descriptions are as follows: I am comfortable without close personal relationships. It is essential to feel independent and self-sufficient and I prefer not to depend on others or have others dependent on me.

Finally, the fearful attachment style includes the following descriptors: I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

In study III we use a semi-structured questionnaire to ask parents who have experienced depressive symptoms and parental stress about their lives.

## **Ethical considerations for all the studies**

In all three studies, ethical considerations were considered. The studies received permission from the Central Ethical Review Board in Sweden. In designing and conducted all three studies it was important to archive and maintain the anonymity of the participants. In the qualitative interview study, it was particularly important to have the opportunity to refer mothers or fathers for appropriate action if they still experienced PPD or high levels of parental stress.

## **Procedure**

The participants in study I, who had completed at least one previous questionnaire, distributed at three or six months after delivery, were given a new questionnaire 25 months after the birth of their child.

The participant parents in study II were given a new questionnaire when they made their regular visit to a CHC when their child was 30 months old. On this occasion, the nurses asked the parents to participate in the study by completing the questionnaire at home. The couples were asked to complete the questionnaire independently of each other and to post them separately. No reminder letters were sent to the parents. In these questionnaires the parents with experience of PPD or parental stress were invited to provide their contact details to participate in a semi-structured interview about those experiences. The results of the parental interviews are included in study III.

# SUMMARY OF THE STUDIES

## Study I

Johansson, M., Svensson, I., Stenström., & Massoudi. P. (2016). Depressive symptoms and parental stress in mothers and fathers 25 months after birth. *Journal of Child Health Care* 21:1 DOI: 10.1177/1367493516679015

### Aims of study I

Study I have been carried out to determine the prevalence of depressive symptoms, feelings of incompetence, spousal relationship problems and mutual relations in a population-based cohort of mothers and fathers 25 months after delivery of the baby.

### Participants

The data used is from a parent-child cohort of a longitudinal study in the county council of Kronoberg in Sweden, which investigated the mental health of a population-based sample of mothers and fathers and their children (Massoudi, Pamela, 2013). Study I was completed in the third wave, which is 25 months after childbirth and includes 700 mothers, 646 fathers and 583 couples. In the sample, the mean age for fathers is 34.6 years and for mothers 32.3 years.

As many as 74% of the couples had lived together for four or more years before the birth of their child. Of the mothers, 5% had undertaken university studies as opposed to 45% of the fathers. Almost 65% of the mothers (64.8%) were working less than full time in contrast to as little as below 13 per cent (12.5%) of the fathers. More than 98% of the responding mothers and fathers were living together as a couple.

## **Instruments**

In this study, The Edinburgh Postpartum Depression Scale (EPDS) is used to identify PPD symptoms (Cox, Holden, & Sagovsky, 1987). We also included two subscales from the SPSQ, measuring different aspects of parents' perceptions of stress in their parental role, questions concerning their general experience of care-giving, feelings of incompetence in the parental role, and statements about parenthood difficulties.

The two scales are included in a revised Swedish version of the American Parenting Index by (Östberg, Monica et al., 1997). The mean, the standard deviations and confidence intervals were calculated for the EPDS. As the SPSQ has not been constructed to be used with cut-off scores, we chose to consider items scored as a four or a five (agree or highly agree on non-reversed items) as having parental stress.

## **Procedure**

The data collection for study I was conducted when the children were 25 months old. It was the final wave in the longitudinal project. All consenting parents who had completed at least one previous questionnaire, distributed at three or six months after delivery, were sent a new questionnaire with a stamped addressed envelope for their reply. The couples were asked to complete the questionnaires independently of each other and to post them in their respective envelopes. Each parent received up to two reminders.

## **Data analysis**

Analysis of the descriptive statistics was carried out using calculations for frequencies and percentages. Associations between depressive symptoms, incompetence and spousal relationship problems for fathers and mothers were calculated using Pearson's correlation. Any differences between mothers and fathers PPD, incompetence and spousal relationship problems were calculated using the paired-samples t-test. The differences between those mothers and fathers with and without depressive symptoms regarding incompetence and spousal relationship problems were assessed using the independent t-test.

## Results

The prevalence of PPD was 4.9% for fathers and 11.3% for mothers. Both the mother and the father in the couple experienced depressive symptoms in 1.5% of cases. This indicates that more than 16% of the children in the study had at least one parent with depressive symptoms.

The results for the prevalence of parental stress show that those parents with depressive symptoms have higher levels of parental stress in the incompetence and spousal relationship problem subscales than parents without depressive symptoms. There is a correlation between depressive symptoms and feelings of incompetence and spousal relationship problems among the fathers ( $r = .53, .43, p < .01$ ).

The mothers showed significantly higher values than fathers for depressive symptoms:  $t(592) = -5.2, p < .01$ , feelings of incompetence:  $t(591) = -2.6, p < .01$  and spouse relationship problems:  $t(592) = 46.7, p < .01$ .

Fathers with depressive symptoms are more likely to experience more feelings of incompetence:  $t(579) = -6.4, p < .001$  and spouse relationship problems:  $t(607) = -3.0, p < .001$  than fathers without depressive symptoms. Mothers with depressive symptoms are also likely to experience more feelings of incompetence:  $t(668) = -7.3, p < .001$  than mothers without depressive symptoms. The same pattern applies to mothers with depressive symptoms and spousal relationship problems:  $t(85) = -9.4, p < .001$ .

## Study II

Johansson, M., Nordström, T & Svensson, I (2019). Depressive symptoms and parental stress; Is attachment the missing link? *submitted to Journal of Child Health Care*.

### Aims of study II

The first aim of study II is to investigate the prevalence of PPD and parental stress in mothers and fathers 30 months after the birth of their child, their mutual association and their experience of support from CHC.

The second aim is to investigate the relative impact of attachment style and parental stress on PPD scores in mothers and fathers two and a half years after the birth of their child.

The third aim is to examine parents with long-lasting problems (parents that have had treatment but still have PPD, [EPDS  $\geq$  12]) to determine if there is a connection between depressive symptoms and attachment style.

### **Participants**

The parents were recruited consecutively from the CHS south of Sweden. The aim was to recruit 200 parents (100 mothers and 100 fathers) since a power calculation (.80) showed that this figure was the least needed to detect a medium sized effect.

After contacting the child health coordinator in a county in southern Sweden, we attended meetings with nurses in Child Health Centres (CHC). In this county all parents with a 2.5-year old child are offered a child visit from a child health nurse.

On this occasion, the nurses asked the parents to participate in the study by completing a questionnaire at home, which included the EPDS, the SPSQ and the RQ as well as background information and their experience of support from CHC. The questionnaires were returned to the researcher.

In the study, 179 mothers and 146 fathers completed the questionnaire. Of these, 127 were couples. The demographic variables are, whether the parent is a mother or a father, age, whether the parents are living together or not, or living with the child's other parent, working hours, education level, number of children (own or partners). In the sample, 54 percent are mothers and 46 percent are fathers.

The data shows that 94 percent of the parents were living together with the child's other parent. Of the parents, 53 percent have two children, 30 percent have one child, almost 12 percent have three children, and 6 percent have one or two stepchildren. Fifty-five percent of the sample have a university education, and 27 percent have a college education.

### **Instruments**

In study II we use the EPDS to measure the prevalence of PPD and the whole of the SPSQ to measure parental stress. The SPSQ contains five subscales: Feelings of incompetence, Spouse relationship problems, Social isolation, Health problems, and Restriction of role.

We also included the relation questionnaire (RQ) to examine the parent's attachment style. The RQ has four categories of attachment style: secure, avoidant, preoccupied and fearful. Finally, we included questions about obtained treatment.

### **Procedure**

The data for study II was collected during the period from September 2017 to September 2018. The questionnaires were delivered by the CHC nurse when the parents made their 30-month visit. The parents were asked to participate and were given the questionnaire and a stamped addressed envelope to take home. The parents returned the completed questionnaire to the researcher in the envelope. No reminders were sent.

### **Data analysis**

For the first aim, we calculate the prevalence of PPD as a cut off and the percentages ( $EPDS \geq 12$ ) for mothers and fathers. We estimate the relationship between PPD and parental stress by using Pearson product-moment correlation coefficients for both mothers and fathers in the sample.

We use frequencies and percentages to make an assumption about how many parents have had treatment, what type of treatment and whether the treatment was successful.

For the second aim, we use an independent t-test to estimate the differences in the RQ subscales between those parents identified as depressed and non-depressed. For the third aim, we use standard multiple regression analysis for mothers and fathers, to estimate the relative contribution of the RQ subscale scores on depression.

### **Results**

It was found that 14.9% of mothers and 11.5% of fathers had depressive symptoms ( $EPDS \geq 12$ ). Both the mother and the father in the couple experienced depressive symptoms in 3 % of cases.

The relationship between the depressive symptoms and parental stress for fathers is moderate,  $r = .42$ ,  $n = 144$ ,  $p < 0.01$  and strong for mothers between the two variables  $r = .51$ ,  $n = 171$ ,  $p < 0.01$ .

There is a significant relation with PPD between preoccupied and fearful attachment. There is no significant relation between secure and avoidant attachment style and PPD.

The regression model explains 32.6% of the variance in PPD scores for mothers ( $R^2 .32.6$ ,  $F (7,154) = 12.13$   $p < .001$ ). The largest unique contribution is for feelings of incompetence (St. beta=.35), social isolation is second (St. beta= .26), and spouse relationship problems is last, explaining the variance in PPD scores (St. Beta=.18).

For fathers, the model explains 23% of the variance in PPD scores  $R^2 .23$ ,  $F (7,130) = 6.73$   $p < .001$ . The largest unique contribution to PPD is social isolation (St. Beta= .27); health problems is the next best predictor for fathers (St. beta= .19). Of these, 31 parents (9.6%) felt that the treatment was successful, and 14 parents (4.3%), felt that the treatment was unsuccessful. The second main aim was to investigate whether there were any differences between the parents identified as depressed and those without depressive symptoms in the RQ subscales. In terms of the avoidant attachment style, there were no significant differences between the depressed parents and the non-depressed parents similarly, no differences were found for Secure attachment between the depressed parents and the non-depressed parents.

However, there was a difference for the preoccupied attachment style (parents with depressive symptoms:  $M = 3.39$ ,  $SD = 2.01$ ; parents without depressive symptoms:  $M = 2.53$ ,  $SD = 1.72$ ,  $t(-2,6) = -2.89$ ,  $p = .052$  and a difference for the fearful attachment style (parents with depressive symptoms:  $M = 2.92$ ,  $SD = 2.11$ ; parents without depressive symptoms:  $M = 2.22$ ,  $SD = 1.59$ ,  $t(-2,04) = -2.49$   $p = .18$ ). However, the difference was not significant

### Study III

Johansson, M., Benderix, Y., Svensson, I. (2019) Mothers' and fathers' experiences of depressive symptoms and parental stress in the first years after childbirth: a qualitative study; *Submitted to International Journal of Qualitative Health and Wellbeing*

#### Aims of study III

The aim of study III is to gain knowledge about the experience of parents with PPD and parental stress at 30 months after the birth of their child. The central research question is about what it is like to be

a parent? who has experienced PPD and parental stress, and what meaning do parents develop, individually and as a couple from this situation. Finally, what is the parents experience of support and treatment for PPD.

### **Participants**

The inclusion criteria for participants in the study are mothers and fathers who gave their written consent during study II to be interviewed about their experience of parental stress and PPD after becoming parents. As part of this qualitative study, 15 parents, consisting of ten mothers and five fathers participated in the interviews.

### **Instruments**

Prior to the interviews, an open-ended questionnaire was formulated to examine the parents' experiences of pregnancy, childbirth, wellbeing after childbirth, and the contact and support they received from CHC.

### **Procedure**

Those parents who provided their contact details in study II, agreed to participate in study III. They were contacted by the researcher and invited to interview. The interviews lasted between 45 minutes and 1.5 hours.

### **Analysis in study III**

For this study, Interpretative Phenomenological Analysis (IPA) has been chosen as the method of analysis to enable an in-depth examination of the lived experiences of those parents with symptoms of depression and parental stress (Lopez & Willis, 2004).

The focus is on the wellbeing of the parent after becoming a parent, and the process of coping with and adapting to parenthood. The interviews were recorded digitally and transcribed verbatim. The interview transcripts were analysed following the steps described in IPA (Smith, Jonathan A, 2015).

The first stage of the data analysis was to familiarise oneself with the transcript and note any important aspects, observations, and make preliminary interpretations. Then the emerging themes were noted

and transformed into more specific themes. They were clustered into categories as conveyed by the participants. A descriptive label was attached to each cluster to express the conceptual nature of the themes (Smith, Jonathan A, 2015).

At the end of the process, the higher-order themes were summarised. The next stage involved a close examination of the most salient higher-order themes. The first author coded the transcripts and developed the thematic framework. The second author contributed to developing the analysis and refining the interpretations to ensure the plausibility and transparency of the analysis.

Finally, the third author read the themes and analyses to ensure that the meaning of the participants narratives was significant. Since many themes emerged from individual transcripts, those which appeared in at least half of them were categorised as current themes to promote an ideographic perspective while simultaneously counterbalancing a more generic one. IPA's research methodology has been adapted to an interpretive approach and attention given to the complexity and context of the participants' experiences to obtain a rich understanding of their perspectives (Smith, Jonathan A., Flowers, & Larkin, 2009).

This selection process required interpretation, which was performed by the researchers. The narratives that represented the essence of the recurrent themes or provided the most powerful expressions were selected, and follow in the results section.

## **Results**

Five prominent themes were identified that describe the mothers and fathers' experiences of depressive symptoms and parental stress during the first years of parenthood; both mothers and fathers described experiences of inadequacy, although fathers described external requirements and mothers described internal requirements as the most stressful. Experiences of problems during pregnancy or a traumatic delivery contributed to depressive symptoms and anxiety in mothers, and affected fathers' wellbeing.

Thus, identifying depressive symptoms with the Edinburgh Postnatal Depressive Scale, mothers described varying experiences of child health care support. Depressive symptoms seemed to affect the spouses' relationships and both mothers and fathers experienced loneliness and spouse relationship problems. Experiences of

emotional problems and insecure upbringing in the parents' family of origin may contribute to vulnerability due to past trauma led to long-term problems for mothers.

## **SUMMARY OF THE FINDINGS**

An overview of the design of and results for each study is presented in Table 1. The results from all three studies indicate that PPD appears to increase after the first year postpartum, especially in fathers, whose scores are almost in keeping with those of the mothers at two and a half years after the birth of their child. The findings provide an indication that parental stress and depressive symptoms are closely related and parental stress (including feelings of incompetence, spousal relationship problems, role diffusion, social isolation and health) can explain the content of the depressive symptoms and the difficulties the parents experience.

Study	Design	Method	Participants	RQ	Result
I	Cross Sectional	EPDS SPSQ- Incompetence in parenthood and Spouse relationship problems	700 Mothers 646 Fathers 583 Couples	Prevalence in depressive symptoms and parental stress 25 months after delivery	11.3 % of the mothers 4.9 % of the parents with depressive symptoms experienced more parental stress in the areas Incompetence and Spouse relationship problems
II	Cross Sectional	EPDS SPSQ RQ	176 146 127	Prevalence of depressive symptoms in mothers and fathers 30 months after delivery The association between depressive symptoms and parental stress? Is there a connection between attachment style and depressive symptoms in parents 30 months after child birth. Does the attachment style contribute to the level of depression over and above parental stress?	14,9 % of the mothers and 11,5 % of the fathers had depressive symptoms. We found a difference for two of the insecure attachment styles (ns) for parents with depressive symptoms however, parental stress outperformed attachment styles as a predictor for depressive symptoms in both the mothers and the fathers.
III	Qualitative Study	Interviews with open-ended questionnaire	10 Mothers 5 Fathers 2 Couples	Mothers and fathers' experiences of depression and parental stress 30 months after delivery	Five prominent themes were identified affecting PPD and parental stress Inadequacy; internal / external stress. Problematic pregnancy/delivery affected PPD in mothers and father's well-being. Thus, identified PPD the mothers had varying experiences of support from CHC. Spouse relation problems. Insecure upbringing may contribute to PPD.

*Figure 1: Overview of the studies included in the thesis*

## GENERAL DISCUSSION

An overall aim of this thesis was to generate an understanding of PPD and parental stress after the first year of childbirth. Secondly, to investigate the prevalence of PPD in mothers and fathers 25-30 months after childbirth.

A further aim was to investigate the association between PPD and parental stress and ascertain whether PPD and attachment style are associated.

A final aim was to investigate parents' narratives of PPD, parental stress and support from CHC.

### **A model to assess parents support needs**

The results are discussed from the perspective of a modified systemic and family development process and have been adjusted to elucidate the findings that transpired from the empirical work in the current thesis.

The theoretical framework includes systemic, family development theory, attachment theory and a diathesis stress perspective. The framework attempts to show the complexity of PPD and illuminates the interaction between individuals, couples, the environment and the social resources involved in the development of PPD.

A model has been developed from the framework described in the thesis to clarify the extent of the most prominent aspects for developing PPD based on the results found in this study. The model is named '*The parenthood developmental model*' (*Pd -model*, see figure 1).

Other factors may also be important, for example, the economic and social conditions of the parents. These aspects are no less important, but they are not within the scope of this study. Each piece of empirical work (I-III) in the thesis will be discussed in light of the '*The parenthood developmental model*'.

### **The parenthood developmental model (*Pd-model*)**

*Pd-model*, has been developed from a systemic family development perspective (Schjødt et al., 1994) where the different components in the model are considered as affecting PPD due to the transaction process and the interaction between the components in the system (the family) and the emerging patterns and organised relations between the parts. Whether parental stress develops into PPD depends on the parent's *individual, couple, environment, and social resources*.

The development of PPD is dependent on the parent's life situation and how the availability of different resources (as described in the model) affect the individual parents.

*The Pd-model*, is in the shape of four cubes each representing the important areas that affect PPD. The first cube is *individual resources* and includes diathesis-stress responses to childhood experiences through to adulthood, such as trauma, secure/insecure upbringing, biological and social conditions.

The individual's life story contributes to the persons diathesis-stress responses. In parental stress the areas *feelings of incompetence in parent-hood* and *health* are included. The *individual resources* also affect the couples, who are represented in the next cube. *Couple resources* include how the parents handle the transition from being part of a couple to being a parent.

Important concepts are parental identity, co-parenting, role congruence and parental role model. All these concepts explain different aspects of the transition difficulties the parents may experience. The parental stress includes *spouse relationship problems*.

The third cube represents *the environmental resources* such as support from society including support during pregnancy, delivery and from the CHC. Areas such as pre-school and the work-situation are included which also can contribute to PPD by placing increased

strains on the parents. *Role restrictions* and *social isolation* are included in parental stress. The final cube includes *social resources* such as networks, and support from family and friends. Parental stress includes the area *social isolation*.

The intention with the *Pd-model* is to illustrate the most important factors arising from the findings of the included studies in the thesis which affect PPD in parents. Furthermore, to highlight PPD as a family affair because PPD affect the whole family. The finally intention of the *Pd-model* is to develop an assessment tool for PPD and create a model which can be used in CHC to assess parents need of support and treatment.

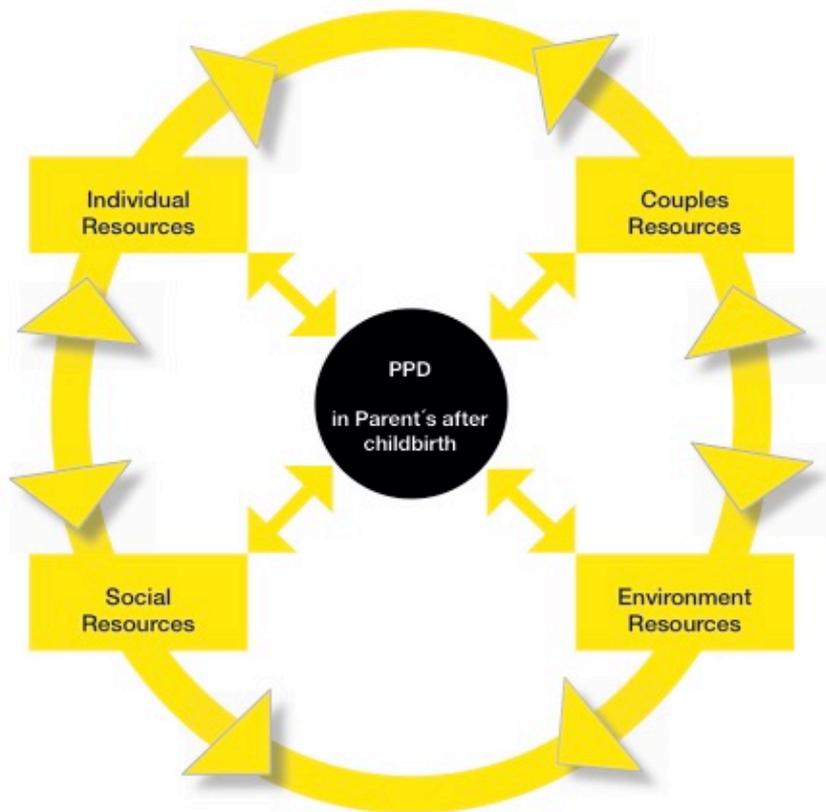


Figure 2. The Parenthood developmental model developed by Johansson (2019).

## **The prevalence of PPD in mothers and fathers, 25-30 months after childbirth**

In study I which took place 25 months after childbirth, the prevalence of depressive symptoms in fathers is 4.9%, and 11.3% in mothers. In study II conducted 30 months after childbirth, the prevalence in mothers is 14.9% and in fathers it is 11.5%. The main finding concerning the prevalence of PPD in these two studies are that PPD does not decline after the first year of childbirth and that the father's symptoms increase later on in parenthood and are nearly in keeping with that of the mothers at 30 months.

These results could indicate that work-life stress and work-family conflict increase the parental requirements and the stress load later in parenthood and subsequently affect the parents' depressive symptoms. Most of the parents in both of the studies are in employment after taking parental leave and this may explain the higher levels of work-life stress and work-family conflict. This has been associated with less healthy family characteristics and parental behaviour (Bauer, Hearst, Escoto, Berge, & Neumark-Sztainer, 2012), elevated levels of depression and poor physical health, and to the incidence of hypertension (Frone, Russell, & Cooper, 1997).

To understand the results from the *Pd-model*, it is essential to include the systemic axiom that the parent with PPD affects the other parent's wellbeing, and that this parent affects the parent with PPD, and so on.... (Vassiliou, 1973). This means that a parent with PPD not only has their own mental pain but that they also need understanding and support. If the parents have difficulty expressing this or their partner is not understanding, this can lead to them struggling. How this struggle manifest itself depends on the parent's *individual resources*, for example, their interpersonal style and interpersonal behaviour developed as a result of their own childhood and adolescent upbringing. This affects the parent's ability to sort out any discord and how they support their partner.

Some parents interpersonal style may lead to romantic conflict stress affecting the depressive symptoms and causing more discord in the *couple's resources* (Eberhart & Hammen, 2010). Today's parents might have more issues to negotiate and have to handle individual,

parental and couple needs, work-life stress and work-family conflict to make their family lives function than earlier generations.

The parents in study III seem to express their problems in traditional divisions of labour and not co-parenting which affects the *couple resources* and also the *individual recourse* to PPD in mothers and parental stress in fathers. It is common for a person in crisis to return to what feels like the familiar (Cullberg, 2010), and maybe this is the case in crises of parenthood, where the parents return to traditional gender roles as a strategy of handling things.

In other studies, the association between mothers and fathers PPD is rather high, and maternal depression is identified as the strongest predictor of paternal depression during the postpartum period (Gavin et al., 2005; Goodman, 2004; Paulson & Bazemore, 2010). However, in our studies there is also an association between mothers or fathers PPD and that of the couples. In study I, 1.5% of mothers and fathers in a couple experience depressive symptoms and this indicated that more than 16% of the children have at least one parent with depressive symptoms.

## **The association between PPD and parental stress**

The association between PPD and parental stress has been confirmed in our studies. In study I, parents with PPD have higher levels of parental stress due to *feelings of incompetence* and *spouse relationship problems* than parents without PPD. In study II, parental stress explains 32.6% of the variance in depression scores for the mother, in *feelings of incompetence*, *social isolation* and *spouse relationship problems*. For the fathers, parental stress explains 23% of the variance in the score for depression with *social isolation* making the biggest contribution and *health problems* being the next best predictor of PPD in fathers.

The results from the studies provide an indication that parental stress and depressive symptoms are closely related and can explain the difficulties that parents face and the content of their depressive symptoms. PPD in mothers is most affected by *feelings of incompetence in parenthood*, *social isolation* and *spouse-relationship problems*.

This means that mothers with PPD suffer from stress in areas including the *individual, couple and social resources as indicated in the Pd-model*. These areas encompass problems in relation to themselves, their spousal relationships and social isolation. The father's *social isolation* and health problems contribute most to their PPD. This is confirmed in study III, where the father's wellbeing is expressed in the stress arising from working life. In the *Pd-model*, the father's wellbeing seems to be affected by the *individual, environment and social resources*.

That mothers and fathers experience parental stress in different areas is also revealed in other studies (Hildingsson & Thomas, 2014; Widarsson et al., 2013) and there is a growing body of gender-specific studies that highlight a trend in men who have more difficulty identifying symptoms of ill-health and who delay seeking help when they become ill (Galdas, Cheater, & Marshall, 2005).

However, it seems that more fathers are showing symptoms of PPD later in parenthood or that they are getting better at expressing their negative wellbeing than they did during study I.

The mother's feelings of incompetence in parenthood have been a feature throughout all three investigations and are also found in other studies (Widarsson et al., 2013; Östberg, et al., 1997). The parental stress scale *feelings of incompetence* includes questions designed to measure depressive symptoms which may explain why mothers with high scores on the EPDS also have high scores for incompetence in parenthood in all studies (Östberg, et al., 1997). These results can explain through *Pd-model* the mother's *feelings of incompetence*, including how *individual resources* may be affected by the absence of a good parental role model. To have a childhood characterised by an absent mother or father reduces the parents' confidence in their own parenting ability and can lead to PPD or high levels of parental stress (Goodman, 2004).

In study III, many of the mothers experienced absent parents and neglect during childhood which may have affected their view of a role model. The fathers may also have had difficulty finding a good role model as they are among the first generation of fathers who are expected to take an equal share of child-rearing and domestic work, which can affect the stress load of both parents. One father expressed it as follows:

*I will be different than my father, I want to be part of my daughter's life in every respect from Saint Lucy's Day to visits to the doctor. I will promote her interests – if she wants to ride horses, she shall ride horses! I will be there and encourage her (F1).*

In modern families and in more egalitarian countries such as Sweden, there is frequently a mutual role change. When the couples each have different views of parenthood it can affect their wellbeing (Hall, 1992). In the *Pd-model*, parenthood identity including role congruence and co-parenting are important concepts that handle parenthood requirements such as work-life and work-family conflicts and different parenthood values. Particularly in study III, the fathers describe a prominent feeling of inadequacy linked to external requirements such as work, the economy, and childcare restrictions which causes them stress in their everyday lives.

The fathers parental stress is expressed in *environment resources*. Most fathers say they experience stress caused by their work and the demands of work and family, expressed as child-care restrictions. This affects them at work, such as when a child is sick or if a meeting is delayed; both stressful matters. This is also confirmed in another Swedish study which reveals that the most frequently rated stressful life event for distressed fathers is problems at work (Massoudi, et al., 2016). This is also associated with less healthy family characteristics and parental behaviour (Bauer, Hearst, Escoto, Berge, & Neumark-Sztainer, 2012) and leads to elevated levels of depression, poor physical health and hypertension (Frone, Russell, & Cooper, 1997).

The fathers high score on the scale of health mirrors the experiences of those in study III who suffer from high levels of stress instead of PPD. The mothers express their parental stress in *individual resources*. In study III, they describe feeling inadequate in relation to parenthood. They perceive parenthood as their responsibility and display a distressing range of emotions including sadness, anger, guilt, feeling overwhelmed, anxiety, loneliness, and a sense that they are shouldering the overall responsibility for the family.

Furthermore, for some mothers this is not merely a feeling. It is obvious from their narratives that they quite literally do have all the

responsibility for taking care of the children and the household. The spouse is often absent, either working or renovating the house. The *individual resources* also became a *couple resource problem*.

In study II, we found a difference between the preoccupied and fearful attachment styles for parents with PPD symptoms and parents without PPD, although it was not significant it seems that parents with PPD also have some connection with attachment style in these areas.

Both PPD and the preoccupied and fearful attachment style may affect the *social resources* as the mothers may have difficulties to ask for support as early experiences has in some way not been supportive. Although the study sample includes a majority of highly educated parents, in full time work and living with the child's other parent, the participants report high levels of parental stress and PPD. One explanation could be that the parents who participated in studies II and III have a particular interest in taking part in the research because they want to talk about their experience.

## **Problems during pregnancy and/or a traumatic delivery, and varying experiences of child healthcare support**

In all the studies we examine the parent's experience of support and treatment. In study I, more than 8 percent of the mothers say they have previously received treatment for anxiety/worrying or depression/low mood. However, 34 percent of the mothers and 25 percent of the fathers score highly on the EPDS 25 months after childbirth despite previously receiving treatment. In study II, we also asked the parents what type of treatment they received and 18.6 percent of them say they were treated for depression. Of these, 10 percent received medication, 58 percent attended counselling/psychotherapy and 32 percent received both counselling and medication. Twenty five percent of the parents believe the medication was helpful, while 15 percent did not. Meanwhile, 61 percent of the parents thought that the counselling/psychotherapy was helpful, while 25 percent did not receive any help for their depression in terms of counselling or psychotherapy.

It seems that the parents have mostly had a good experience of medication or counselling/psychotherapy. However, some of the parents did not think that the medication or counselling/psychotherapy had been helpful. In study III, some mothers report that they did not receive any support despite scoring highly on the EPDS, while some mothers said they received excellent support. We do not know why there are such variations. It could be due to a lack of time at the CHC with staff having too many tasks to fulfil (Wells, Massoudi & Bergström 2017) or because the nurses had no treatments to offer. In the *Pd-model*, the *environment resources* include the support during pregnancy, during delivery and from CHC after childbirth.

The task of the CHC is to prevent and reduce parental distress. In Swedish society families often move away from their families of origin and form different family constellations than the traditional nuclear family form, which because they lack any support of their own place's great demands on health care providers to support them. If the parents don't have support from their own *social resources* as parents or friends, parenthood can be difficult and affect the couple's relationship as well as the parent's wellbeing.

The factor most consistently identified with PPD and marital adjustment is a lack of social support (Beck, 2001; Xie, He, Koszycki, Walker, & Wen, 2009). Despite this, some mothers completed the EPDS and received high scores but didn't have any treatment. Having a certain amount of parental distress/PPD in parenthood may have an adaptive function, although a chronic amount could lead to a psychopathological disturbance particularly if it is associated with an absence of social support (Epifanio, Genna, De Luca, Roccella, & La Grutta, 2015).

Another important theme in study III is that many of the parents experienced complications in pregnancy and/or a traumatic delivery and this seemed to have led to the emergence of depressive symptoms and anxiety, and the development of panic attacks in the mothers which affected the father's wellbeing. Experiencing such problems during pregnancy or delivery are risk factors for subsequent postpartum depression or anxiety and posttraumatic stress disorder (Olde, van der Hart, Kleber, & Van Son, 2006) with depressive

illness, and with difficulties in the mother-infant attachment (Ballard, Stanley, & Brockington, 1995).

If the parents also have spousal relationship problems and limited or no contact with their family of origin it can also increase the risk of PPD (Cairney, Boyle, Offord, & Racine, 2003). To support parents with PPD in the *Pd-model* it is important to identify it and ensure that the treatment matches the difficulty. This is done by a clinical assessment of the parent's life situation, the parent's *individual, couple* and *social* and the *environment resources* to get the right psychological/ psychotherapeutic and social support and treatment.

This means that CHC must have enough time to support the parents with minor distress and have the opportunity to refer them for psychological or psychotherapeutic treatment when the parents have more complex problems. A meta-study measuring the effect of psychological treatment on maternal depression found that psychotherapy leads to a decrease in maternal depression and has a positive effect on the mental health of their children and on their parenting/marital distress (Cuijpers, Weitz, Karyotaki, Garber, & Andersson, 2015).

## Spouse Relationship Problems

Many studies report that depressive symptoms and parental stress has a negative effect on a couples' relationship (Morgan, Matthey, Barnett, & Richardson, 1997; Östberg et al., 2007; Österberg., 1998). In our three studies mothers are more affected by spouse relationship problems than fathers. This may indicate that the mothers are more vulnerable than the fathers or that they have other expectations, for example, that the fathers should be more involved in child-rearing (Twenge, Campbell, & Foster, 2003; Welles-Nystrom, 1988).

In study I, there is a medium level relationship between PPD and spousal relationship problems in both mothers and fathers. In study II, the association between PPD and spousal relationship problems is evident for mothers but not for fathers. In study III, both mothers and fathers' express feelings of loneliness and spousal relationship problems and four of the mothers and one of the fathers are divorced.

This is in keeping with a Swedish study which found that less dyadic consensus and greater parental stress is associated with a

higher risk of marital separation (Kerstis, Engström, Sundquist, Widarsson, & Rosenblad, 2012). The *spouse relationship problems* seem to affect both mothers and fathers but particularly the mothers, in all three of the included studies in the thesis. In the *Pd-model*, the *couple resources* include the parent's ability to make a change from first to second order (Schjødt et al., 1994).

This transition includes qualitative discontent and structural change in the transition from being part of a couple to becoming a parent. The parents need to develop a co-parenting relationship with each other, to divide up tasks and help each other to cope with the daily hassles and negotiate and solve their discord. Factors such as parental identity, co-parenting and role congruence, seem to affect individual and marital wellbeing in new parents (Cast, 2004; Feinberg, 2002).

The results from study III indicate that the mothers feel that they don't develop a co-parenting relationship with their partners. This is a basic aspect of family development (Minuchin, 1974) and the relationship between parents and their parenting (Feinberg, 2003). Family systems theory places importance on the co-parenting relationship, referring to it as the family's executive subsystem; and the couple subsystem has important implications for the parent-child subsystem (Krishnakumar & Buehler, 2000).

Further, marital conflict is partly mediated by the relationship between depression in both mothers and fathers and child outcomes (Hanington, Heron, Stein, & Ramchandani, 2012). Relationship satisfaction seems to strongly buffer the effect of other stressors for both mothers and fathers (Røsand, Slinning, Eberhard-Gran, Røysamb, & Tambs, 2012). Kerstis et al. (2014) found that 6-8 years after childbirth 20% of the couples had separated, and that the separation was associated with less dyadic consensus, and with depressive symptoms and parental stress. Family research concludes that the marital or couple relationship is closely associated with parenting and child adjustments and that the best familial predictor of child behaviour problems is marital discord (Emery & O'Leary, 1982, 1984; Porter & O'Leary, 1980).

The *Pd-model*, includes the *individual resources* and *social resources*, through diathesis-stress theory which explains the individual contribution of mothers and fathers to the parent's ability

to establish the transition. Where the parents have experienced discord in their family of origin or have had absent or negative parent role models it is likely that they will have more difficulty in the transition to parenthood and have less ability to handle any problems in a structured way (O'Hara & Swain, 1996; Webster, Nicholas, Velacott, Cridland, & Fawcett, 2011).

## **Vulnerability due to Past Trauma**

In study III, some mothers describe their upbringing as involving neglect, insecurity, and emotional abandonment, which may have created a vulnerability towards PPD upon becoming a parent themselves. These results are consistent with the psychological knowledge that an insecure upbringing may constitute a risk factor for later depressive symptoms and parental stress (Ethier, Lacharite, & Couture, 1995; Paley et al., 2005; Røseth, Bongaardt, & Binder, 2011; Weissman et al., 2016).

The mothers have displayed enduring problems affecting not only themselves but also their spouses and their relationship with their child. The experience of an insecure upbringing seems to affect the mothers' psychological wellbeing and put them at risk of PPD. Weissman et al. (2016) identified that the offspring of depressed parents represent a high-risk group for psychiatric and medical problems that begin early on and continue throughout adulthood, eventually leading to spousal relationship problems (Cummings, Keller, & Davies, 2005; O'Hara & McCabe, 2013; O'Hara & Swain, 1996).

The *Pd-model, individual resources* includes each parent's individual life story, which contributes (such as abuse/neglect and a past history of depression, which are seen as important risk factors for PPD) to the persons diathesis-stress responses (Eberhard-Gran, Eskild, Tambs, Samuelsen, & Opjordsmoen, 2002; Leigh & Milgrom, 2008).

In study II, both mothers and fathers experience parental stress on the scale *social isolation*, which includes questions about support from the family of origin and their network of friends, including as *social resources* in the *Pd-model*. As most of the parents in the study

are working, the network is important for support with childcare or other practical matters that make everyday life easier.

If the network is problematic or absent this can have an impact on the parent's stress levels. O'Hara et al. (1996) identified that low social support was a risk factor for PPD claiming that support from friends and the family of origin helps the parents to manage work-family conflicts and can support the family in various other ways (Webster et al., 2011). In study III, some of the mothers reported that they had experienced insufficient support from their parents which placed them under additional stress.

We found that those with preoccupied and fearful attachment styles have a connection to depression, although not statistically significant. As suggested by Sroufe et al. (Sroufe, Coffino, & Carlson, 2010) and Bifulco et al. (2002) these attachment styles can indicate serious problems such as psychological trauma or neglect in childhood. Parents with preoccupied and fearful attachment styles may have a more complex depression and could need psychotherapy, as counselling (the usual treatment in CHC's in Sweden) may be insufficient. It is also usual for parents with these attachment styles to have difficulties in their couple relations (Mikulincer, Florian, Cowan, & Cowan, 2002).

The *Pd-model*, can be used to identify parents with complex PPD because they need differentiated support and treatment. Counselling may not be enough to support parents with long-term PPD and psychiatric care rarely works either. As the parents also may have difficulties in their couple relationship they need treatment as a couple to handle discord and parental conflicts. Especially as discord and parental conflict have a negative effect on a child's emotional security (Davies & Cummings, 1994) and in the worst cases, their physical security (Fonagy, 1999).

To sum up, the *Pd-model*, has been used to describe the factors that contribute to PPD. The model can be used after EPDS screening as a way to clinically assess the parent's *individual, couple* and *social resources* and to get them the correct psychological or psychotherapeutic treatment via the *environment resources*. The parenthood model stipulates that mothers or fathers experience of PPD requires differentiated support and treatment as a consequence of their individual background and life situation.

The treatment rests on a diagnostic assessment of the parent's life situation, an identification of the risks and protective factors in each individual parent, in the couple and socially. The model can also be used as an educational tool during pregnancy and after delivery to highlight PPD and to increase parents' knowledge of how their life situation may affect their wellbeing and where to get treatment.

## **Methodological Discussion: Strengths and Limitations**

To our knowledge, these studies are the first to examine the prevalence of PPD in both the mother and the father after the first year of childbirth that include both quantitative and qualitative data about the parent's experiences of PPD, parental stress, treatment and support. This combination of methods is a major strength of these studies as the quantitative data is reinforced by the qualitative data to provide a profound understanding of the parent's experience of PPD, the factors that increase the likelihood of PPD and the parents own experience of treatment and support.

Another strength is the increased knowledge of and in parents with PPD and parental stress 25-30 months after childbirth, and the understanding of how mothers and fathers experience PPD and parental stress in different ways. The thesis also finds that the transition to parenthood may involve vulnerability areas as described in the *Pd-model*. This knowledge can be used for both the education of parents and for the CHC assessment and treatment for parents with PPD and parental stress.

There are, however, some limitations that need to be considered.

In this thesis the concept of PPD is used despite the timespan being 25-30 months after childbirth. Since the EPDS is constructed and validated for the first year postpartum, the answers to the questions may be less useful for identifying depressive symptoms that occur later, particularly in fathers. We used a cut-off score of 12 or more as indicative of depressive symptoms. This may also have affected the prevalence of PPD as other studies have found that the EPDS factor structure is different for mothers and fathers (Psouni et al., 2017; Massoudi et al., 2013).

For mothers, a depression factor explains most of the variance and a second anxiety factor explains a smaller amount. For the fathers, the variance consists more of anxiety and unhappiness while the depression factor explains a smaller amount (Massoudi, Hwang, & Wickberg, 2013; Matthey, 2008). This may indicate that the father's high prevalence of PPD in study II is more reflective of worry and anxiety than depression. This is also confirmed in study III where the fathers identify themselves more with high levels of stress than with being depressed.

The reason for using the EPDS is that it is an often-used measure of PPD and by using it we can compare current prevalence levels and as they change over time, so it is important to use the most commonly applied method of measurement to ensure face validity.

In all three studies, the majority of parents were highly educated, were in full time work and were living with the child's other parent. This makes them representative of many parents today, but not of everyone.

In study I, we can see that nearly all (almost 99 percent) the parents are living together as a couple, while the corresponding official statistics for the county stand at around 88 percent. This indicates that in this respect the sample was not representative, and we have reason to suspect that a large number of the parents who did not respond to the survey have separated. Therefore, we cannot generalise our findings to single fathers and mothers who do not live with their children, or to parents who are not fluent in the Swedish language.

Other studies have shown that parents with psychosocial problems from other countries have even higher levels of PPD (Magnusson, Lagerberg, & Sundelin, 2011; Skoog, Berggren, & Hallström, 2019). It is also well known that self-reporting measures can be problematic since the respondents may underestimate or overestimate their symptoms and problems for various reasons, which may affect the measurement. Especially the measure of attachment style using RQ need further investigations to conform whether the use of RQ is useful for measuring attachment styles in research.

Therefore, conclusions from study I and II must be tentatively drawn and may warrant further investigation. It is particularly important to investigate the relation between PPD and attachment

style further to determine whether the preoccupied and fearful attachment style can explain the long-term prevalence of PPD.

Study III is a qualitative phenomenological analysis which supports studies I and II through the parent's narratives of their experience of PPD, parental stress, the impact on couple relations and their support and treatment.

However, qualitative research has its own built-in limitations such as the impossibility to draw causal conclusions, which is not an aim in this type of research. It was therefore not possible to draw any specific causal conclusions about the parent's experience and the development of depression and high levels of stress. Still, the narratives offer a nuanced picture of the individual experiences of the parents and reminds us of other studies into parent's feelings of depression and parental stress (Kerstis, Engström, Sundquist, Widarsson, & Rosenblad, 2012; Widarsson et al., 2013).

As we were interested in parents with experience of depressive symptoms and parental stress, the parents with these experiences were included in study III. The findings are understood to have arisen from these implications. The study does not include the same number of fathers as mothers and is based on parents who volunteered to participate in the study. The sample is not demographically representative, as most of the participants are highly educated, in employment or on parental leave or studying. These limitations though, have provided rich data for the study because such well-educated parents were able to describe their experiences very well.

However, these studies need further replication using more sensitive instruments, especially the attachment style questionnaire. It is also important to investigate more carefully and with larger sample sizes.

## **Clinical Implications**

The research finds that depressive symptoms do not decrease after the first year postpartum, particularly in fathers. Their depressive symptoms are almost in keeping with the symptoms reported by mothers at 30 months after childbirth. This indicates the need to monitor the parents' wellbeing on more than one occasion, which is the current practice in the CHC's and to include the father's

wellbeing. The CHC's appear to have been ineffective in identifying the depressive symptoms that occur later in parenthood.

The present study indicates that depressive symptoms and parental stress become more prevalent after the first year postpartum. In our study, aside from the parents who scored  $\geq 12$  on the EPDS, 58 parents (20%) scored between nine and 11. The cut-off score of 12 is often used for prevalence research (Cameron et al., 2016; Eberhard-Gran et al., 2002). These parents may develop depressive symptoms later on during the child's pre-school years. Many parents may not meet the cut-off point but may still need support to prevent depression especially immigrant mothers are not identified through screening for PPD (Magnusson, Lagerberg, & Sundelin, 2011; Shakeel, et al., 2018).

These findings and those in earlier research into the risk factors for PPD in mothers note that depression or anxiety during pregnancy or a previous history of depression are the strongest predictors of postpartum depression in mothers (Robertson et al., 2004) and that immigrants' mothers and fathers may have even more difficulties to be identified and supported. This indicates that screening or even just asking about the psychic wellbeing of mothers during pregnancy could facilitate the distressed mother to have treatment before childbirth, because psychotherapy treatment can be strenuous afterwards when she has a baby to look after.

If the CHC's need to screen mothers more than once it may need a careful reflection since doing so may result in an increase in workload. Using the Whooley questions, for screening of depression may be one way of reducing the workload and getting the parents accustomed to talking about their mental wellbeing with the same ease that they talk about their physical condition.

The recommendation is that healthcare professionals ask two questions during the parents first contact with CHC, then again at the parents next visit, and again postnatally at 4-6 weeks and 3-4 months (Bosanquet et al., 2015).

Despite all the research into the difficulties of the transition to parenthood and the risk of PPD and parental stress in fathers, CHC support is still organised in a way that primarily suits mothers (Wells et al., 2017) .

The findings indicate that there is a need to re-consider the current models of maternal health surveillance and primary care support for parents with PPD in Sweden. Primary care services need to remain attentive to the high prevalence of maternal depression among women with pre-school aged children, and target resources at those at higher risk of mental health issues during the child's pre-school years.

In addition, these findings indicate a need for a systemic approach to supporting parents, which involves focusing on both parents in CHC/primary care. Depressive symptoms and parental stress are seldom an exclusively individual problem as they affect not only the depressive parent but also the spouse and the child.

## Conclusion

The overall conclusion of this thesis is that PPD and parental stress have a significant impact on the everyday lives of affected parents. The main findings are that PPD does not seem to decline after the first year of childbirth. In addition, fathers' levels of PPD are almost in keeping with those of mothers at 30 months after childbirth. It also finds that mothers and fathers express their problems in different ways. Fathers seem to express their PPD by withdrawing from their parental role and experience their stress as health problems.

Whereas mothers seem to express their PPD in feelings of being an incompetent parent and spousal relationship problems. Also, it seems that during crises in parenthood the parents revert to their traditional gendered roles.

Another conclusion is that PPD and parental stress seem to be closely related and can explain the areas that parents struggle with. It is surprising how socially vulnerable the normally well-functioning mothers and fathers are during the first years of parenthood.

We also found that preoccupied and fearful attachment styles seem to contribute to long-lasting PPD. Most of the parents who had treatment for PPD are satisfied with it with some mothers describing their support from CHC nurses as excellent. Although some parents in the studies were not satisfied with their support at all and most of them had no treatment at all.

The *Pd-model model* that includes individual resources, couple resources, social resources and environment resources has been used as a framework for the empirical studies in this thesis. All four areas are influenced by the parent's life situation and affect the development of PPD.

The purpose of the *Pd-model* is to focus on the aspects involved in PPD as this is important for the support and treatment of parents with PPD. However, the framework that guides the thesis only attends to some aspects and we cannot claim that it provides a complete view of the complex concept of PPD. Nevertheless, the thesis has highlighted that attention must be paid to PPD even after the first year of childbirth.

## Future Studies

In subsequent projects it would be interesting to investigate following subjects;

- The experience of nurses who work with CHC. Their experience of providing support for mothers and fathers, and when and how they refer parents for treatment if needed.
- As antenatal depression is the strongest predictor of postnatal depression, and postnatal depression is the strongest predictor for parenting stress (Leigh & Milgrom, 2008), it would also be interesting to screen for antenatal depression during pregnancy and to give treatment to high scoring already pregnant mothers, to investigate if this can prevent the development of PPD.
- The use of Whooley questions for identifying antenatal depression. Whether the identification is satisfactory, and if it facilitates the midwife's and the parent's experience of being questioned about their wellbeing at every meeting.
- If there is support from the CHC for couples and the impact on the wellbeing of the parents and child. To monitor the health of the parents and the child when the child is one, three, six and nine years old. Other factors to investigate include divorce rates, child behaviour, and healthcare including the possible diagnosis of the child and the parents.

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